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PERFORMANCE AND LOADS DATA FROM A WIND TUNNEL TEST OF A FULL-SC--ETC(U)
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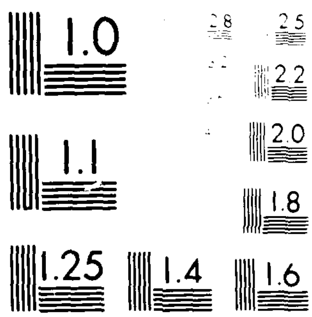
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NASA Technical Memorandum 81329

USAARADCOM TR 81-A-27

LEVEL II

(1)

Performance and Loads Data from a Wind Tunnel Test of a Full-Scale, Coaxial, Hingeless Rotor Helicopter

Fort F. Felker III

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82

NASA
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PERFORMANCE AND LOADS DATA FROM A WIND TUNNEL TEST OF A FULL-SCALE, COAXIAL, HINGELESS ROTOR HELICOPTER

Fort F. Felker, III

Ames Research Center

and

Aeromechanics Laboratory

AVRADCOM Research and Technology Laboratories

SUMMARY

A test of a full-scale XH-59A Advancing Blade Concept Helicopter was conducted in Ames Research Center's 40- by 80-Foot Wind Tunnel. The helicopter was tested with the rotor on and off, rotor hub fairings on and off, inter-rotor shaft fairing on and off, rotor instrumentation module on and off, and auxiliary propulsion thrust on and off. The investigation was accomplished over an advance ratio range of 0.25 to 0.45 with the rotor on and from 60 to 180 knots with the rotor off. This report presents data on aerodynamic forces and moments, rotor loads, rotor control positions and vibration for the XH-59A as well as the aerodynamic performance of the isolated rotor.

List of Symbols

a	speed of sound, ft/sec
A_1	longitudinal cyclic blade pitch, deg
b	total number of rotor blades
B_1	lateral cyclic blade pitch, deg
$c_{.75}$	blade chord at 75% radius, ft
$C_{DR/\sigma}$	rotor drag coefficient, rotor drag/$\rho S(\Omega R)^2$
$C_{LR/\sigma}$	rotor lift coefficient, rotor lift/$\rho S(\Omega R)^2$
$C_{MX/\sigma}$	rotor rolling moment coefficient, rotor rolling moment/$\rho S(\Omega R)^2 R$
$C_{MY/\sigma}$	rotor pitching moment coefficient, rotor pitching moment/$\rho S(\Omega R)^2 R$
$C_{MZ/\sigma}$	rotor yawing moment coefficient, rotor yawing moment/$\rho S(\Omega R)^2 R$
$C_{p/\sigma}$	rotor power coefficient, total turboshaft engine power/$\rho S(\Omega R)^3$
$C_{po/\sigma}$	rotor nonideal power coefficient
$C_{YR}/_{\sigma}$	rotor side force coefficient, rotor side force/$\rho S(\Omega R)^2$
D	drag, lb
L	lift, lb
ℓ	rolling moment, ft-lb
M	pitching moment, ft-lb
M_{at}	advancing tip Mach number, $M_{at} = M_{tun} + M_{tip}$
M_{tip}	rotor tip rotational Mach number, $\Omega R/a$
M_{tun}	free stream Mach number, $M_{tun} = V/a$
N	yawing moment, ft-lb
q	free stream dynamic pressure, $\rho V^2/2$, lb/ft^2

List of Symbols (continued)

r	local blade radius, ft
R	rotor radius, ft
S	rotor reference area, $S = bc_{.75}R$
V	free stream velocity, ft/sec
Y	side force, lb
α	angle of attack, deg
α_S	shaft angle of attack, deg
μ	rotor advance ratio, $V/\Omega R$
Ω	rotor rotational speed, rad/sec
ψ	blade azimuth, deg, counter-clockwise is positive as viewed from above, zero with instrumented blade pointing aft
ρ	air density, slugs/ft^3
σ	rotor solidity, $\sigma = b\, c_{.75}/\pi R$
θ	rotor blade pitch, deg

Subscripts

u	upper rotor
ℓ	lower rotor
$(\ )'$	prime, differential between upper and lower rotors

INTRODUCTION

The high-speed capability of modern helicopters can be limited by the rapid increase in rotor power requirements that accompanies retreating blade stall and advancing blade compressibility drag. In order to reduce the compressibility drag the rotor's rotational speed must be reduced, but this only aggravates the problem of retreating blade stall.

One solution to this dilemma is to use two counter-rotating rotors with each lifting predominantly on its advancing side. Since the retreating side of each rotor is unloaded, blade stall is less of a problem and the rotor's rotational speed can be reduced, which helps alleviate compressibility drag as well. Two XH-59A Demonstration/Research Helicopters were built by Sikorsky Aircraft under Army Sponsorship using this Advancing Blade Concept (ABC). A three-view drawing of the helicopter as modified for wind tunnel testing is presented as figure 1. Readers who desire additional information on the ABC concept are referred to references 1-6.

One disadvantage of this configuration is the large parasite drag of the rotor hubs and inter-rotor shaft. The hub drag is proportional to the hub's swept frontal area (reference 7) and the ABC, with two hubs instead of one, has twice the hub swept frontal area of a conventional helicopter of similar (hingeless) construction. In addition to this is the drag due to the inter-rotor shaft. In an effort to reduce the hub's parasite drag a 1/5-scale model wind tunnel test was conducted to identify the drag reduction potential of fairing the rotor hubs and inter-rotor shaft of the XH-59A (reference 8). Many fairing configurations were tested and one was selected for full-scale wind tunnel testing.

This report presents the results of a full-scale wind tunnel test of an XH-59A helicopter conducted in Ames Research Center's 40- by 80-Foot Wind Tunnel. The objectives of the test were to (1) provide advanced technology data necessary for assessment of a potentially viable mission-oriented ABC vehicle, including hub drag reduction and rotor/tail/propulsion system interference alleviation, and (2) provide data with which to interpret, clarify, and augment flight test results as well as provide a base for correlation of existing 1/5-scale model test data. The test was conducted over an advance ratio range of 0.25 to 0.45 with the rotor on and from 60 to 180 knots with the rotor off. Data is presented for aerodynamic forces and moments, rotor control positions, rotor structural loads, and vibration of the XH-59A as well as the aerodynamic performance of the isolated rotor.

EXPERIMENTAL EQUIPMENT AND PROCEDURES

Description of Wind Tunnel and Balance

The 40- by 80-Foot Wind Tunnel is of the closed-throat, single-return type with a speed capability extending to 180 knots. Model forces and moments were measured by a six-component mechanical balance. Balance sensitivities were as follows:

Scale	Sensitivity
Lift*, lb	5
Drag, lb	1
Side Force*, lb	1
Pitching Moment, ft-lb	160
Rolling Moment, ft-lb	85
Yawing Moment, ft-lb	24

*two balances used to measure total force

Description of Model

General - Several photographs of the ABC installed in the wind tunnel test section are presented as figure 2. Note the fairings installed over the rotor hubs and inter-rotor shaft in figures 2(a) and 2(b). The helicopter was modified by the addition of two struts and fairings in place of the main landing gear so that it could be mounted on the wind tunnel's strut model support system. Figure 2(f) presents a close-up view of the model support struts. The helicopter's pitch attitude (rotor shaft angle of attack) was remotely controlled using an extendable nose strut. The three struts which support the model on the wind tunnel balance were faired to minimize the extraneous airloads applied to the balance. The midpoint between the two rotors was 5 feet above the tunnel centerline. Power for the rotors was supplied by two PT6T-3 turboshaft engines producing a total of 1500 HP. The nacelle-mounted engines for auxiliary propulsion were J60-P3A turbojets which produce 3000 lbs. of thrust each. General specifications of the XH-59A are presented in Table 1.

Six rotor controls were remotely operated from the control room by electromechanical actuators. The six rotor controls were collective, lateral cyclic, and longitudinal cyclic for each rotor. The relationships between these controls and the rotor blade pitch were as follows:

Collective: $$\theta_o = \frac{\theta_{ou} + \theta_{o\ell}}{2}$$

Longitudinal Cyclic: $$A_1 = \frac{A_{1u} + A_{1\ell}}{2}$$

Lateral Cyclic: $$B_1 = \frac{B_{1u} + B_{1\ell}}{2}$$

Differential Collective: $\theta_0' = \dfrac{\theta_{0u} - \theta_{0\ell}}{2}$

Differential Longitudinal Cyclic: $A_1' = \dfrac{A_{1u} - A_{1\ell}}{2}$

Differential Lateral Cyclic: $B_1' = \dfrac{B_{1u} - B_{1\ell}}{2}$

Therefore the blade pitch on the upper rotor was:

$$\theta_u = (\theta_0 + \theta_0') - (A_1 + A_1') \cos \psi_u - (B_1 + B_1') \sin \psi_u$$

blade pitch on the lower rotor was:

$$\theta_\ell = (\theta_0 - \theta_0) - (A_1 - A_1') \cos \Psi_\ell - (B_1 - B_1') \sin \psi_\ell$$

Rotor Blades - The XH-59A used three 18-foot radius rotor blades on each rotor. The upper rotor rotated in the counter-clockwise direction, and the lower rotor rotated in the clockwise direction. The upper and lower rotors were indexed such that when the instrumented blade of the upper rotor was at $\psi = 0°$, the instrumented blade of the lower rotor was at $\psi = 300°$. The rotor blades were attached to the hubs without flap or lead-lag hinges, using only pitch bearings. The blades were attached with 3° of precone and 1.4° of prelag. The blades were tapered in both planform and thickness. The planform taper was linear with a rotor chord to tip chord ratio of 2:1. A drawing of the blade in plan view is presented as figure 3. The spanwise variation of blade thickness to chord ratio is presented as figure 4. The airfoil contour at 20% radius was a NACA 63(230)224A airfoil tapering in thickness to a NACA 63(230)-213A airfoil at 62% radius. This transitioned to a NACA 23012(64) airfoil at 72% radius which was held constant to the tip (fig. 3). The blades had -10° of nonlinear twist. The twist distribution is presented as figure 5. The

primary structural element in the blades was a full span titanium spar with boron composite reinforcement bonded to the upper and lower surfaces of the spar to increase the flapwise stiffness. A honeycomb core covered with a fiberglass skin was attached to the spar to give the blades their aerodynamic shape. Figure 6 presents a drawing of a typical blade section. The blade's natural frequency diagram is presented as figure 7. The spanwise distribution of rotor blade properties are given in Table 2.

Description of Hub Fairings

Figure 8 presents a sketch of the rotor hub fairings that were tested. The upper and lower rotor hub fairings were 31.8% thick ellipsoids. These fairings had a diameter of 4.17 feet. The inter-rotor shaft fairing was a 43% thick NACA 4-digit series symmetric airfoil. The inter-rotor shaft fairing was mounted to the upper and lower rotor hubs with bearings and was free to rotate about the rotor centerline. It was expected that the fairing would, therefore, rotate to a trailing edge aft orientation, aligned with the free stream. However, it was noted during the wind tunnel test that the fairing did not align itself with the wind and was skewed about 30° relative to the free stream either to the left or to the right. This failure to align itself was evident when testing both with the hubs rotating and the hubs not rotating when testing with the rotor blades off. The skew also continued when testing with the rotor blades on. In an effort to eliminate the skew of the inter-rotor shaft fairing, an extended trailing edge tab was attached to the fairing (see fig. 8). However, the skew continued in spite of the extended trailing edge tab.

An aerodynamic configuration which is free to pivot about a point aft of its aerodynamic center is inherently unstable about its pivot. The pivot of the inter-rotor shaft fairing was at the 30% chord location. It is to be

expected that the inter-rotor shaft fairing would not line up with the wind if its aerodynamic center is forward of 30% of chord. It was reported in reference 9 that a NACA 0035 airfoil had an aerodynamic center located 16% of chord aft of the leading edge. Although the inter-rotor shaft fairing's airfoil section was a slightly thicker NACA 0043, ref. 9 indicates that the trend is for the aerodynamic center to move forward with increasing thickness. Thus, the available evidence indicates that the aerodynamic center of the inter-rotor shaft fairing was at least as far forward as 16% of chord aft of the leading edge. The failure of the inter-rotor shaft fairing to properly align itself with the free stream was, therefore, a result of the aerodynamic center being forward of the pivot point. The extended trailing edge tab had little effect on the orientation of the inter-rotor shaft fairing. The reason was that the trailing edge tab was not long enough to move the aerodynamic center aft of the pivot point.

Figure 9 presents a sketch of the unfaired rotor hub with the rotor blades off and also shows the instrumentation can. The instrumentation can housed signal conditioning equipment and slip rings used for acquiring data in the rotating frame of reference.

Instrumentation and Data Reduction

Wind tunnel wall corrections have been applied to the forces and moments measured by the wind tunnel balance. This wall correction is based on conventional fixed wing techniques, for a wing of span equal to the rotor diameter (reference 10). The wall correction was an incremental change in the angle of

attack that was proportional to the lift:

$$\Delta\alpha = 0.00235 \frac{L}{q}$$

where the constant, 0.00235 deg/ft^2, was determined based on rotor and wind tunnel geometric parameters. This incremental angle, $\Delta\alpha$, was added to the geometric angle of attack, α_S, to obtain the corrected rotor disk angle of attack in free air, α.

$$\alpha = \alpha_S + \Delta\alpha$$

Balance forces and moments were then resolved to this new wind-axis system.

Tare corrections were analytically determined to account for forces and moments produced by the exposed model support struts (references 11, 12). The exposed tips of the wind tunnel model support system struts were estimated to have a total parasite drag area of 3.35 ft^2. The fairings around the model's support struts (extending from the tips of the wind tunnel model support system struts to the ABC's main landing gear wheel wells, see fig. 2(f)) were modelled as low aspect ratio wings (AR = 1.26). An explanation of the equations used to correct the measured forces and moments for the effects of the strut fairings is presented in Appendix I. The forces and moments produced by the J60 auxiliary propulsion engines have also been subtracted out of the data presented here. The thrust was calculated from a thrust versus exhaust pressure ratio calibration which was performed in an engine test cell before the wind tunnel test. An explanation of the equations used to correct for the thrust of the J60 engines is presented in Appendix II.

All aerodynamic forces and moments are presented in wind axes. The axis center for rotor forces and moments was on the centerline of the inter-rotor shaft halfway between the two rotors. In aircraft coordinates this position

would be:

Fuselage Station = 300

Water Line = 215

Butt Line = 0

All other aerodynamic forces and moments were resolved to the aircraft's center of gravity, whose location is shown on fig. 1. In aircraft coordinates, the center of gravity is located at:

Fuselage Station = 294.7

Water Line = 158

Butt Line = 0

Positive directions of forces and moments are shown in figure 10.

Engine torques were measured using pressure transducers plumbed to the engine torque pressure outputs. These torques were multiplied by the engine output shaft's rotational speed to obtain the power output. A nonideal power coefficient was computed as follows:

$$C_{po}/\sigma = C_p/\sigma - \sigma(C_{LR}/_{\sigma})^2/2\mu + \mu\, C_{DR}/\sigma$$

The parameter C_{po} is obtained by subtracting the propulsive or parasite power and the ideal induced power from C_p; therefore, it is equal to the sum of the rotor profile power and nonideal induced power losses.

The aerodynamic forces and moments of the isolated rotor were obtained by subtracting the forces and moments due to the fuselage from the total measured.

The forces and moments due to the fuselage were determined from testing with the rotor blades off. This "tare" due to the fuselage was described by polynomial equations in α and q after the forces and moments due to the J60 engines had been removed. These equations are given in Table 3. These tares were obtained with the instrumentation can installed on the inter-rotor shaft, no hub fairings, and the hubs rotating. However, several rotor-on runs were conducted with the hub fairings installed in place of the instrumentation can. The fuselage tares obtained with the instrumentation can were also used to calculate the rotor forces for these runs. Therefore, the effect of substituting the hub fairings for the instrumentation can is included in the rotor forces and moments since the fuselage aerodynamic tares used to calculate the rotor forces and moments were obtained with the instrumentation can installed.

The instrumentation parameters considered in this report are listed in Table 4, including units and positive directions. The actual radial locations of the blade bending gages are given in Table 5 and are shown on a drawing of the rotor blade in fig. 3. The signals from the parameters listed in Table 4 were sampled and digitized 64 times per revolution. The time history was smoothed and filtered by eliminating subharmonics and harmonics above 10/rev; and a correction for the Bessel filters in the amplifiers was applied.

Due to various problems encountered during the wind tunnel test, the mean values of the blade pitch data (θ_0 and $\Delta\theta_0$) are not reliable from run to run. However, the increments of collective and differential collective pitch within a run are reliable.

OPERATING CONDITIONS

The ABC's performance and loads data were acquired over an advance ratio range of 0.25 to 0.45 with the rotor on and from 60 to 180 knots with the rotor off. For the rotor-on runs, the rotor speed was adjusted to give the desired tip Mach number, M_{tip}, and the tunnel speed was adjusted to obtain the desired advance ratio, μ. Data were then acquired for a matrix of shaft angles, α_S, and rotor lift coefficients, $C_{LR/\sigma}$. The operating conditions at which the data were acquired are shown in figure 11.

Several hub fairing configurations were tested, and runs were conducted both with the rotor blades on and with the rotor blades off. Table 6 presents a key to the configuration that was tested in each run. Rotor-on testing was conducted over an angle of attack range of 0° to 10°. Rotor-off testing was conducted over an angle of attack range of -10° to +10° and a yaw angle range of -15° to +14°. The auxiliary propulsion engines were operated at flight idle for all runs except for run 10.

RESULTS

Performance Data

The performance data are tabulated in Section A. A dictionary of the parameters is provided in Table 7. The data are organized by run number.

Control and Loads Data

The control and loads data are tabulated in Section B. The oscillatory (one-half peak-to-peak) and mean loads, the blade pitch control settings, and the one-half peak-to-peak accelerations are presented. A dictionary of the parameters is presented in Table 8. The data are organized by run number.

Detailed Loads Data

Detailed loads data are given in Section C. The first 10 harmonics and the time history over one revolution are presented for the blade bending moments, pitch link loads, and upper rotor shaft stress. A dictionary of the parameters is provided in Tables 7 and 8. The pitch link load given in the detailed loads presentation is that of the red, instrumented blade. As previously noted, when the instrumented blade of the upper rotor was at ψ = 0°, the instrumented blade of the lower rotor was at ψ =300°.

Plotted Data

Selected performance and loads data are plotted in Section D. A dictionary of the parameters is provided in Tables 7 and 8. Fuselage aerodynamic characteristics, rotor performance, rotor loads, and airframe vibration plots are presented. The data points are designated by circles on the plots. The majority of the plots present isograms for a particular quantity as a function of rotor lift and rotor drag, at a given advance ratio. The contours are interpolated from the values of the quanity at the data points. The parameter ε_V in the upper left-hand corner of the plots is the rms error of the estimate of the quantity at the data points based on the interpolated contours.

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TABLE 1. XH-59A GENERAL SPECIFICATIONS

Aircraft Length (rotor turning)	41.7	ft
Fuselage Length	40.8	ft
Rotor Radius, R	18.0	ft
Number of Rotors	2	
Blades per Rotor	3	
Rotor Separation	2.5	ft
Blade Tip Chord	0.938	ft
Blade Taper Ratio	2:1	
Blade Twist (nonlinear)	-10	deg
Total Rotor Solidity, σ	0.1267	
Rotor Reference Area, S	128.965	ft^2
Blade Precone Angle	3	deg
Blade Prelag Angle	1.4	deg
Shaft Tilt	0	deg
Design Rotor Tip Speed	650	ft/sec
Rotor Drive System Power	1500	HP
Tail Surface Area - Horizontal	60	ft^2
- Vertical	30	ft^2
Horizontal Tail Incidence	-5	deg
Power Plants - Lift	(2) PT6T-3	
- Thrust	(2) J60-P3A	

TABLE 2. SPANWISE DISTRIBUTION OF ROTOR BLADE PROPERTIES

r/R	Weight, lb/ft	r/R	Flapwise Stiffness EI_f, lb-ft^2 x 10^{-3}	r/R	Chordwise Stiffness EI_c, lb-ft^2 x 10^{-3}
0.	0.	0.	5,970	0.	5,970
0.030	116.40	0.092	5,790	0.092	5,970
0.092	116.40	0.144	3,330	0.115	4,380
0.092	26.40	0.202	1,940	0.173	3,190
0.115	21.60	0.259	1,361	0.288	2,290
0.173	16.80	0.345	875	0.403	1,750
0.288	11.40	0.403	667	0.518	1,472
0.403	8.16	0.518	361	0.691	1,000
0.576	5.04	0.634	194	0.864	556
0.737	3.36	0.748	111	1.0	389
0.737	5.04	1.0	56		
0.939	3.84				
0.939	12.24				
0.973	12.23				
0.973	14.88				
1.0	14.88				

TABLE 2. CONTINUED

r/R	Torsional Stiffness GJ, lb-ft^2 x 10^{-3}	r/R	Torsional Inertia, I, lb-ft^2/ft
0.	4,785	0.	1.458
0.093	4,785	0.116	1.458
0.125	3,993	0.116	1.225
0.174	2,326	0.139	1.225
0.231	1,528	0.139	1.033
0.289	1,111	0.162	1.033
0.347	778	0.162	1.175
0.405	507	0.23	1.125
0.463	330	0.40	0.650
0.521	208	0.60	0.375
0.579	134	0.944	0.151
0.694	67	0.979	0.151
0.810	35	0.979	0.136
0.926	22	1.0	0.136
1.0	21		

TABLE 3. EQUATIONS FOR FUSELAGE AERODYNAMIC TARES

For $q < 50\ \text{lb/ft}^2$

$$\begin{bmatrix} \frac{L}{q} \\ \frac{D}{q} \\ \frac{M}{q} \\ \frac{Y}{q} \\ \frac{N}{q} \\ \frac{\ell}{q} \end{bmatrix} = \begin{bmatrix} 10.76035 & 5.41970 & 0.00009 & 0.00095 & -0.59206 & 0.00638 \\ 23.46913 & 0.03287 & 0.05235 & 0.00168 & -0.01789 & -0.00057 \\ -130.64588 & -38.59377 & 0.26388 & -0.04500 & 4.74413 & -0.06653 \\ -1.40292 & -0.08140 & -0.00874 & 0.00054 & 0.11532 & -0.00160 \\ -2.68051 & 1.57295 & -0.03260 & -0.00470 & -0.38280 & 0.01217 \\ 61.30223 & 0.06086 & -0.14750 & 0.00422 & -3.43062 & 0.05991 \end{bmatrix} \begin{bmatrix} 1 \\ \alpha \\ \alpha^2 \\ \alpha^3 \\ q \\ q^2 \end{bmatrix}$$

For $q > 50\ \text{lb/ft}^2$

$$\begin{bmatrix} \frac{L}{q} \\ \frac{D}{q} \\ \frac{M}{q} \\ \frac{Y}{q} \\ \frac{N}{q} \\ \frac{\ell}{q} \end{bmatrix} = \begin{bmatrix} -6.72088 & 5.17748 & 0.01511 & 0.00221 & 0.07984 & 0.00079 \\ 21.57190 & 0.00113 & 0.05188 & -0.00166 & -0.00328 & -0.00005 \\ -124.43791 & -42.96387 & -0.08872 & -0.00494 & 2.66738 & -0.01700 \\ -0.64084 & -0.13112 & -0.00645 & 0.00075 & 0.03859 & -0.00030 \\ -13.78191 & 1.00925 & 0.01682 & -0.00512 & 0.39236 & -0.00336 \\ 47.21218 & -0.16395 & 0.04250 & 0.00356 & -1.11131 & 0.00714 \end{bmatrix} \begin{bmatrix} 1 \\ \alpha \\ \alpha^2 \\ \alpha^3 \\ q \\ q^2 \end{bmatrix}$$

TABLE 4. LIST OF INSTRUMENTATION PARAMETERS

Parameter	Units	Positive Direction
Upper rotor chordwise bending moment, .1R	ft-lb	tip aft
Upper rotor normal bending moment, .1R	ft-lb	tip up
.2R	ft-lb	tip up
.3R	ft-lb	tip up
.6R	ft-lb	tip up
Upper rotor red blade pitch link load*	lb	tension, leading edge up
Upper rotor yellow blade pitch link load	lb	tension, leading edge up
Upper rotor blue blade pitch link load	lb	tension, leading edge up
Upper rotor shaft stress	lb/in^2	tension
Upper rotor blade root pitch	deg	leading edge up
Lower rotor chordwise bending moment, .1R	ft-lb	tip aft
Lower rotor normal bending moment, .1R	ft-lb	tip up
.2R	ft-lb	tip up
.3R	ft-lb	tip up
.6R	ft-lb	tip up
Lower rotor red blade pitch link load*	lb	tension, leading edge up
Lower rotor yellow blade pitch link load	lb	tension, leading edge up
Lower rotor blue blade pitch link load	lb	tension, leading edge up
Lower rotor blade root pitch	deg	leading edge up
#1 PT6 torque	ft-lb	power to rotor
#2 PT6 torque	ft-lb	power to rotor
Gearbox vertical acceleration	g's	
Gearbox lateral acceleration	g's	
Gearbox longitudinal acceleration	g's	
Left vertical fin vertical acceleration	g's	
Horizontal stabilizer vertical acceleration	g's	
Left aft support strut lateral acceleration	g's	
#1 J60 vertical acceleration	g's	
#2 J60 vertical acceleration	g's	

*the red blade was the instrumented blade for both rotors.

TABLE 5. BLADE BENDING GAGE LOCATIONS

NOMINAL STATION	r/R
.1R	0.1026
.2R	0.1991
.3R	0.3009
.6R	0.6019

TABLE 6. CONFIGURATION KEY

RUNS	HUB FAIRING	INTER-ROTOR SHAFT FAIRING	INSTRUMENTATION CAN
Rotor Blades off			
10,12	on	on	off
13	on	off	off
15	off	off	off
17,18	off	off	on
Rotor Blades on			
21,23,24,25	off	off	on
28,29,30	on	on	off

TABLE 7. PERFORMANCE DATA PARAMETERS

LABEL	PARAMETER
ALFS,C	angle of attack in free air, α, deg
ALFS,U	shaft angle of attack, α_S, deg
ANXL/R	inclination of thrust vector from vertical, positive forward, deg
BAR	atmospheric barometric pressure, in Hg
CDR/S,R	rotor drag coefficient, $C_{DR/\sigma}$
CLR/S,R	rotor lift coefficient, $C_{LR/\sigma}$
CMX/S,R	rotor rolling moment coefficient, $C_{MX/\sigma}$
CMY/S,R	rotor pitching moment coefficient, $C_{MY/\sigma}$
CMZ/S,R	rotor yawing moment coefficient, $C_{MZ/\sigma}$
CP/S	rotor power coefficient, $C_{P/\sigma}$
CPO/S	rotor nonideal power coefficient, $C_{PO/\sigma}$
CYR/S,R	rotor side force coefficient, $C_{YR/\sigma}$
DRAG	aircraft drag, lb
DRAG/Q	aircraft drag/q, ft^2
DRAG,R	rotor drag, lb
E3	upper rotor hub fairing
E4	lower rotor hub fairing
IC	instrumentation can

TABLE 7. CONTINUED

LABEL	PARAMETER
HP	total power output of PT6 engines, horsepower
J THRUST	total thrust of J60 auxiliary propulsion engines, lb
L/DE	effective aircraft lift/drag, including equivalent drag of PT6 power. L/DE = lift/(drag +(550xHP/V))
L/D,R	effective rotor lift/drag, including equivalent drag of PT6 power. L/D,R = rotor lift/(rotor drag + (550xHp/V))
LIFT	aircraft lift, lb
LIFT/Q	aircraft lift/q, ft^2
LIFT,R	rotor lift, lb
MAT	advancing tip Mach number, M_{at}
MTUN	free stream Mach number, M_{tun}
OMEG*R	rotor tip speed, ΩR
PITCH	aircraft pitching moment, M, ft-lb
PITCH/Q	aircraft pitching moment/q, ft^3
PITCH,R	rotor pitching moment, ft-lb
PSI	aircraft yaw angle
QPSF	free stream dynamic pressure, q, lb/ft^2
RHO100	free stream density multiplied by 100, $slugs/ft^3$

TABLE 7. CONTINUED

LABEL	PARAMETER
ROLL	aircraft rolling moment, ℓ, ft-lb
ROLL/Q	aircraft rolling moment/q, ft^3
ROLL,R	rotor rolling moment, ft-lb
RPM	rotor rotational speed, rev/min
RPM,%	rotor rational speed expressed as percent of nominal value, RPM/343.6
S4	inter-rotor shaft fairing
SIDE	aircraft side force, Y, lb
SIDE/Q	aircraft side force/q, ft^3
SIDE,R	rotor side force, lb
TEMP	free stream temperature, deg farenheit
TIPM	rotor rotational Mach number, M_{tip}
TORQ	total rotor shaft torque, except for transmission losses, TORQ = HP x550/Ω, ft-lb
VKTS	free stream velocity, knots
V/OR	rotor advance ratio, μ
YAW	aircraft yawing moment, N, ft-lb
YAW/Q	aircraft yawing moment/q, ft^3
YAW,R	rotor yawing moment, ft-lb

TABLE 8. CONTROL AND LOADS DATA PARAMETERS

LABEL	PARAMETER
ALPH	angle of attack in free air, α, deg
A1	mean cosine component of blade pitch, A_1, deg
A1P	differential cosine component of blade pitch, A_1', deg
B1	mean sine component of blade pitch, B_1, deg
B1P	differential sine component of blade pitch B_1', deg
COS	cosine component of fourier series
GB LNAC	gearbox longitudinal acceleration, one-half peak-to-peak, g's
GB LTAC	gearbox lateral acceleration, one-half peak-to-peak, g's
GB VTAC	gearbox vertical acceleration, one-half peak-to-peak, g's
HARMONIC	harmonic number of fourier series
HST VTAC	horizontal stabilizer vertical acceleration, one-half peak-to-peak, g's
LAS LTAC	left aft support strut lateral acceleration, one-half peak-to-peak, g's
LRCB	lower rotor chordwise bending, ft-lb
LRN1	lower rotor normal bending .1R, ft-lb
LRN2	lower rotor normal bending .2R, ft-lb
LRN3	lower rotor normal bending .3R, ft-lb

TABLE 8. CONTINUED

LABEL	PARAMETER
LRN6	lower rotor normal bending .6R, ft-lb
LRGPL	lower rotor green blade pitch link load, lb
LRRPL	lower rotor red blade pitch link load, lb
LRYPL	lower rotor yellow blade pitch link load, lb
LVF VTAC	left vertical fin vertical acceleration, one-half peak-to-peak, g's
MN	mean load
OS	one-half peak-to-peak oscillatory load
PSI	blade azimuth angle, ψ, deg
SIN	sine component of fourier series
THETA	mean blade root pitch, θ_0, deg
THETAP	differential collective, θ_0', deg
URCB	upper rotor chordwise bending, ft-lb
URN1	upper rotor normal bending .1R, ft-lb
URN2	upper rotor normal bending .2R, ft-lb
URN3	upper rotor normal bending .3R, ft-lb
URN6	upper rotor normal bending .6R, ft-lb

TABLE 8. CONTINUED

LABEL	PARAMETER
URBPL	upper rotor blue blade pitch link load, lb
URRPL	upper rotor red blade pitch link load, lb
URYPL	upper rotor yellow blade pitch link load, lb
URSB	upper rotor shaft bending stress, lb/in^2
VKTS	free stream velocity, knots
V/OR	rotor advance ratio, μ
#1J VTAC	#1 J60 vertical acceleration, one-half peak-to-peak, g's
#2J VTAC	#2 J60 vertical acceleration, one-half peak-to-peak, g's
#1Q	#1 PT6 engine output torque before reduction gearing, ft-lb
#2Q	#2 PT6 engine output torque before reduction gearing, ft-lb

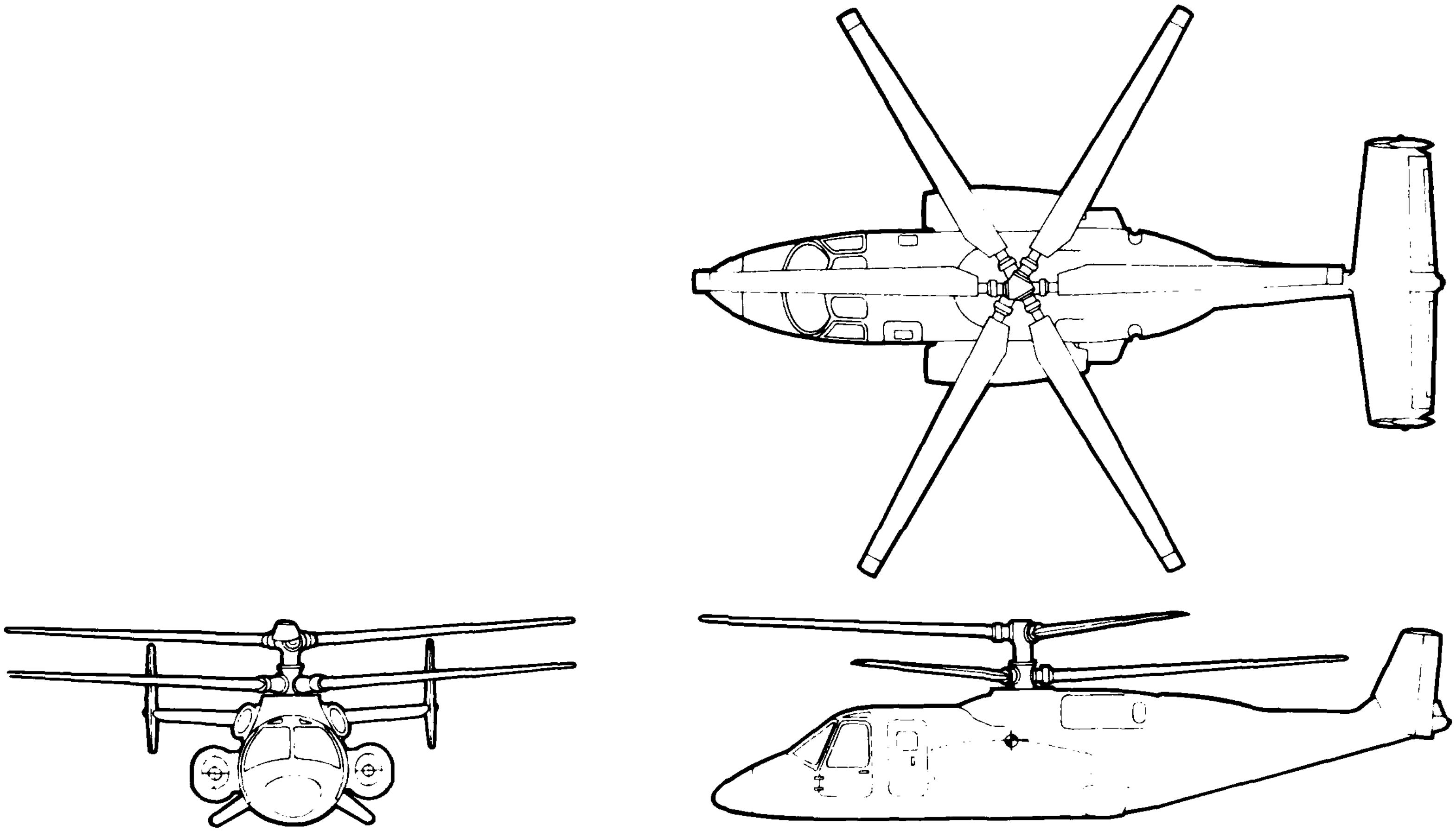

Figure 1. 3–VIEW DRAWING OF ABC

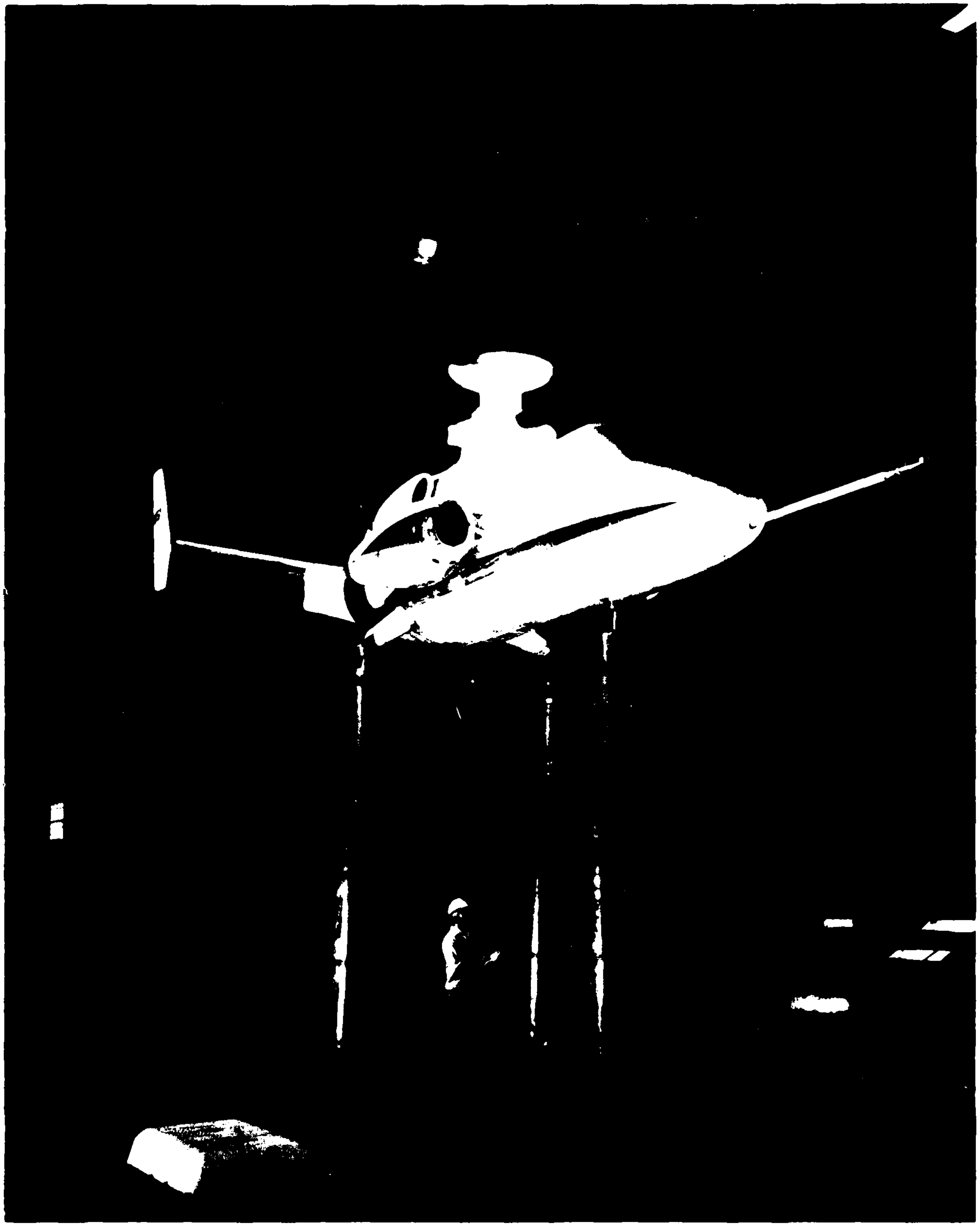

Figure 2(a). Front View of ABC with Hub Fairings Installed

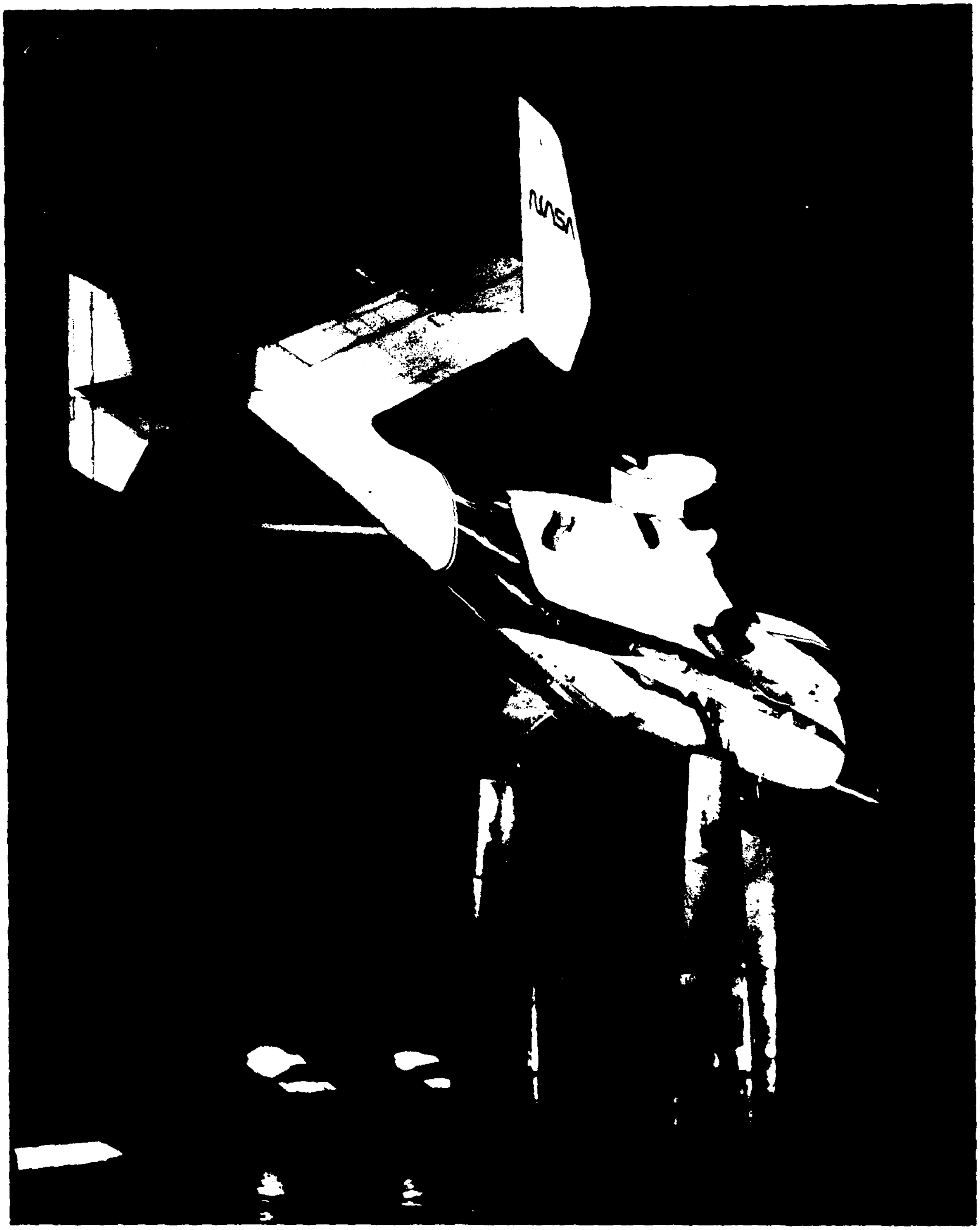

Figure 2(b). Rear View of ABC with Hub Fairings Installed

Figure 2(c). Front View of ABC with Instrumentation Can Installed

Figure 2(d). Side View of ABC with No Hub Fairings Installed

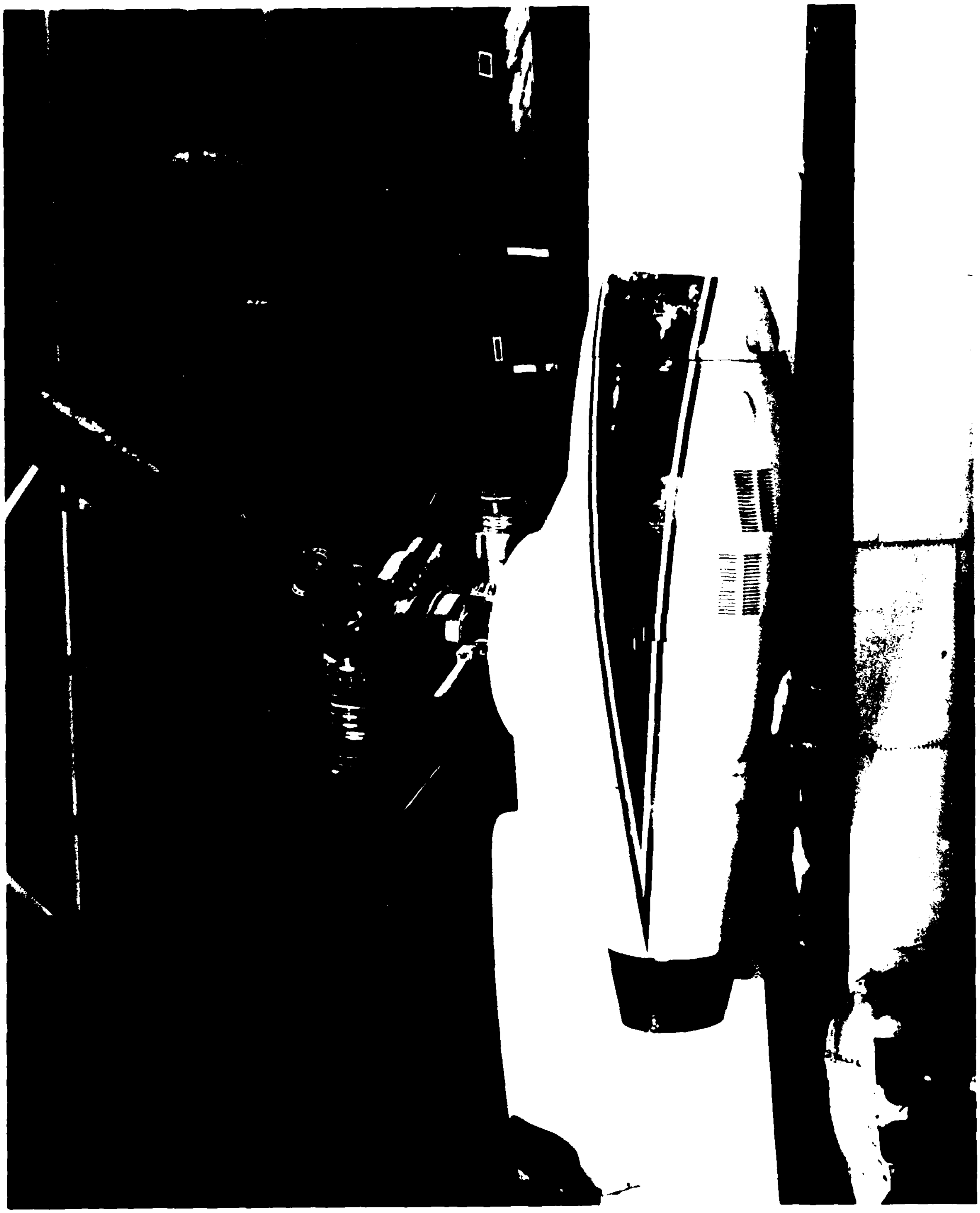

Figure 2(e). Close-up View of Rotor Hubs

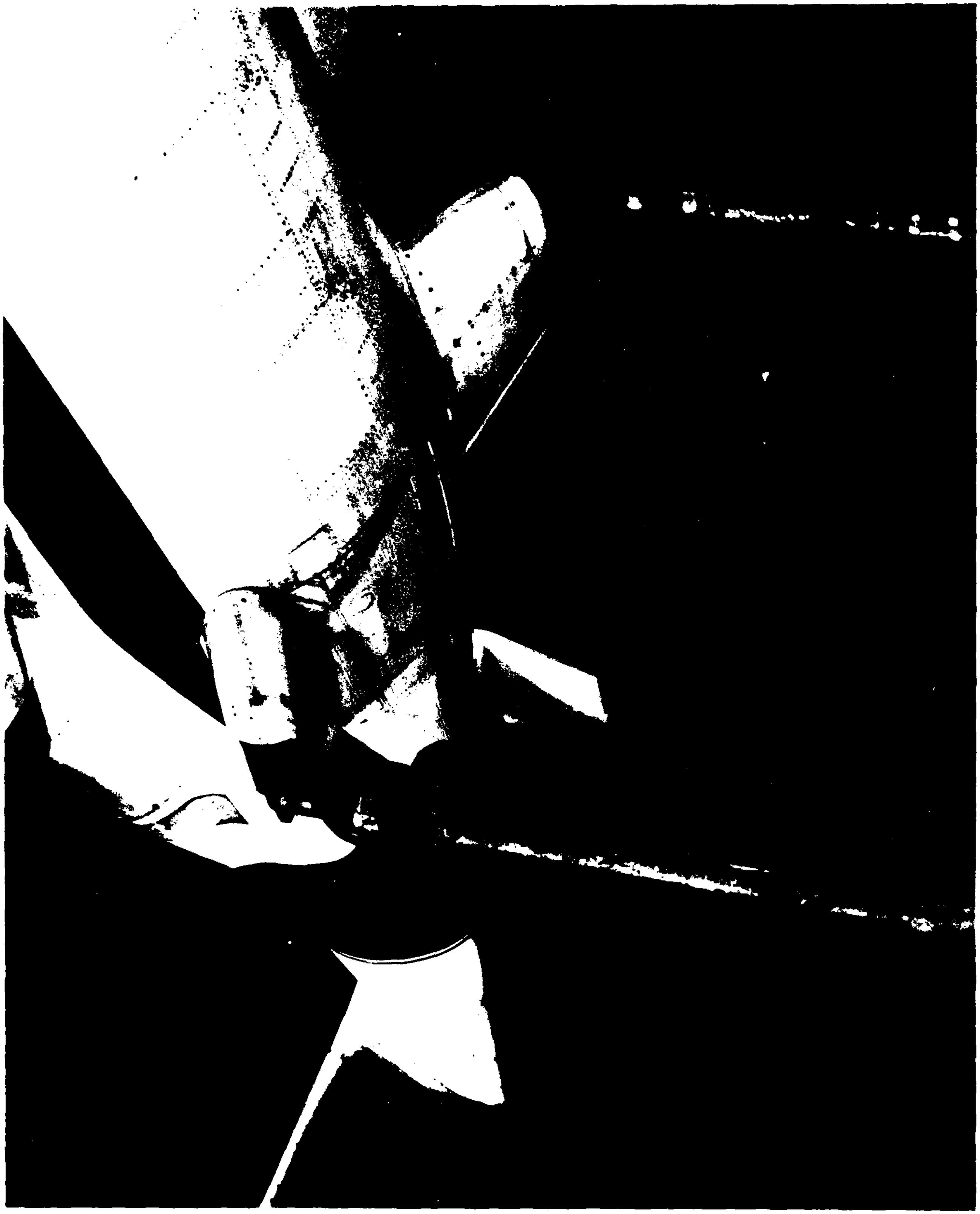

Figure 2(f). Close-up View of Model Support Struts

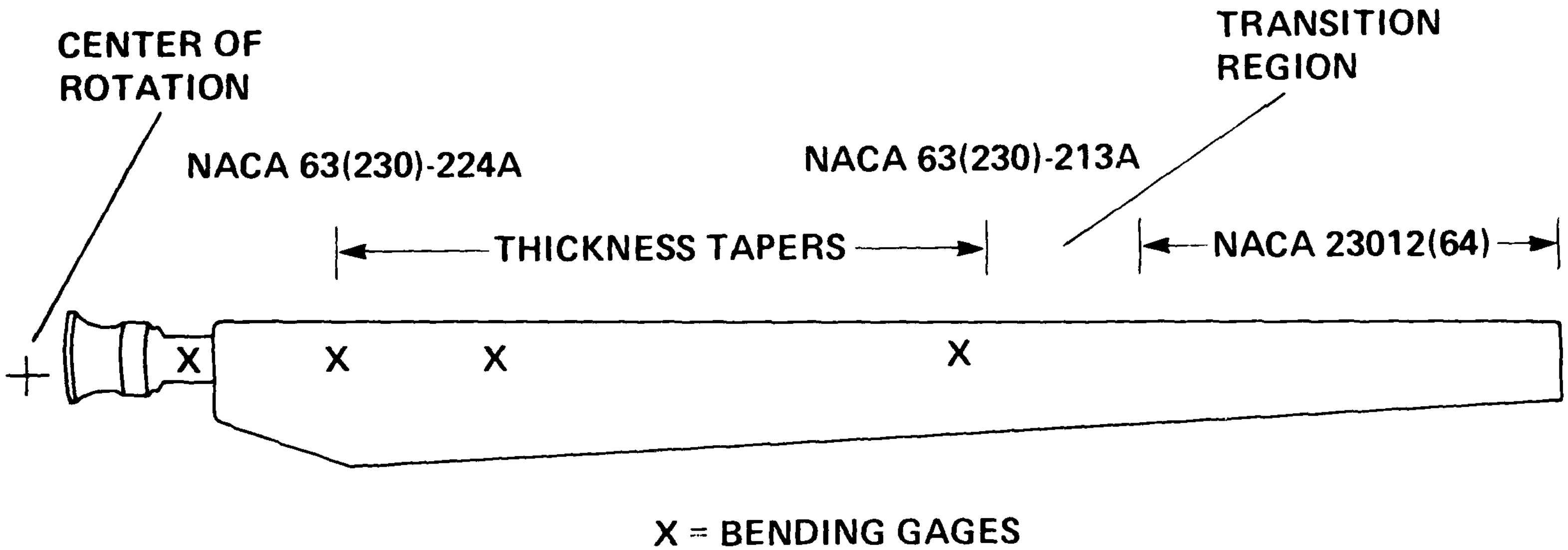

Figure 3. SKETCH OF ROTOR BLADE

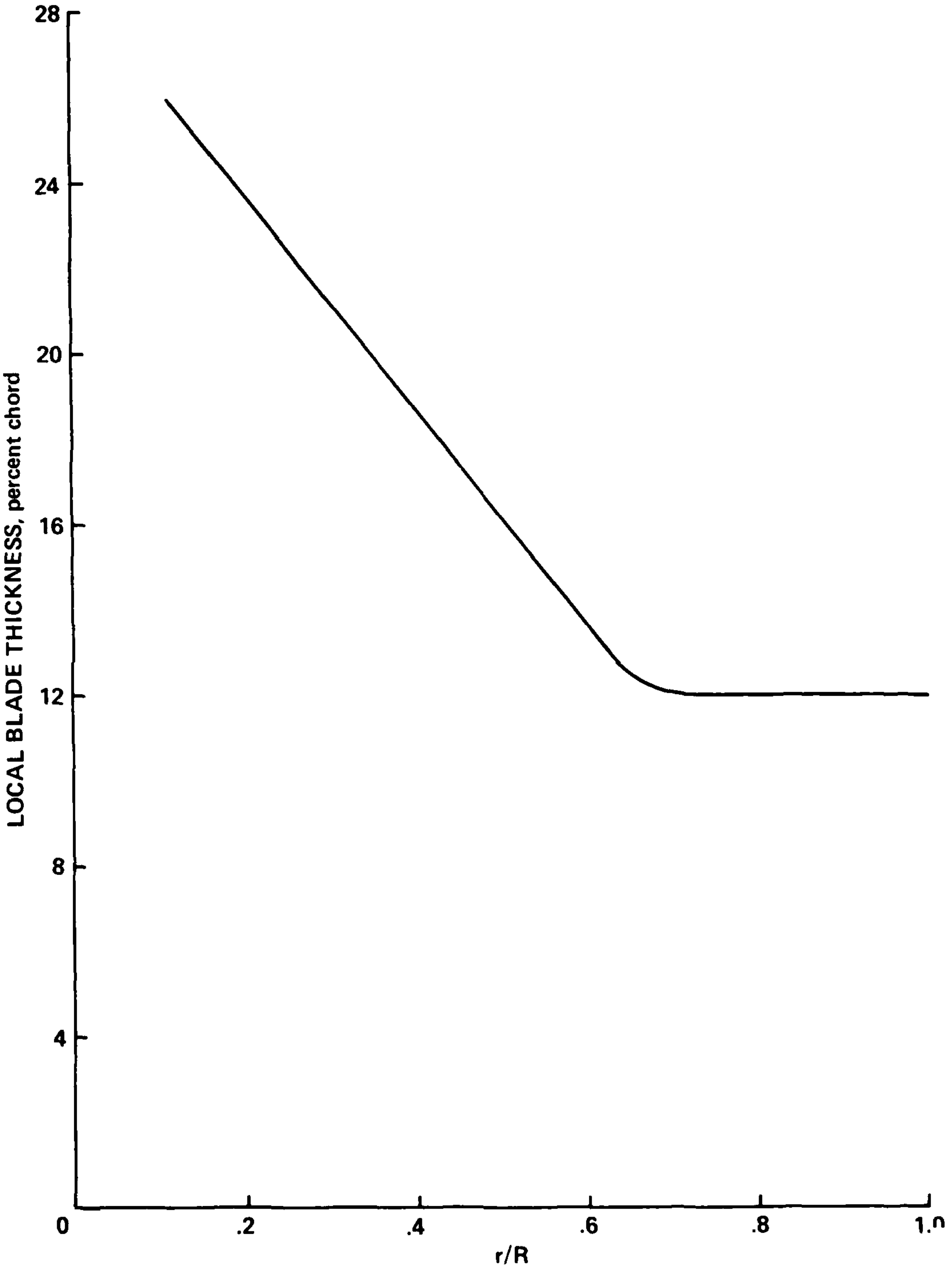

Figure 4. BLADE THICKNESS DISTRIBUTION

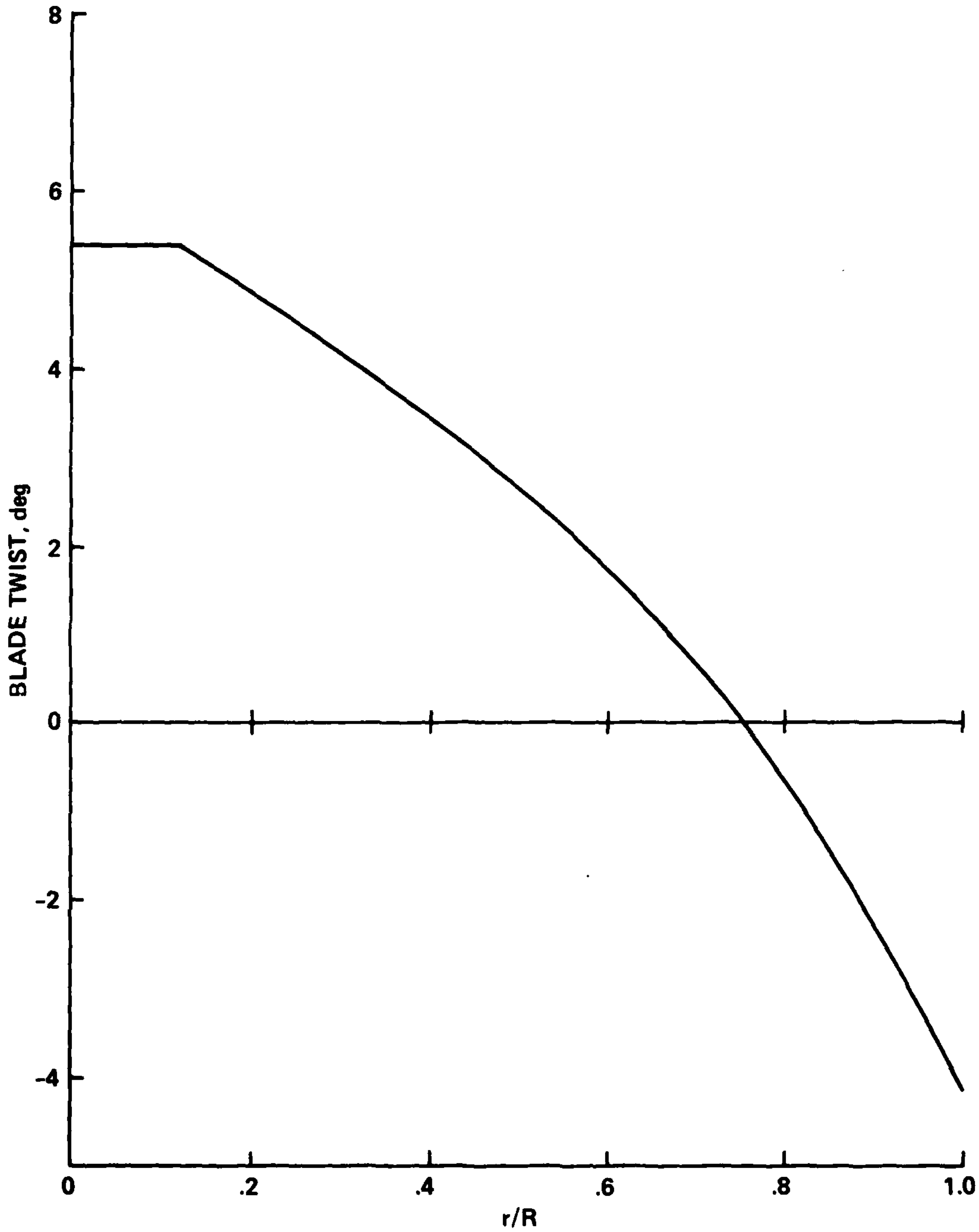

Figure 5. BLADE TWIST DISTRIBUTION

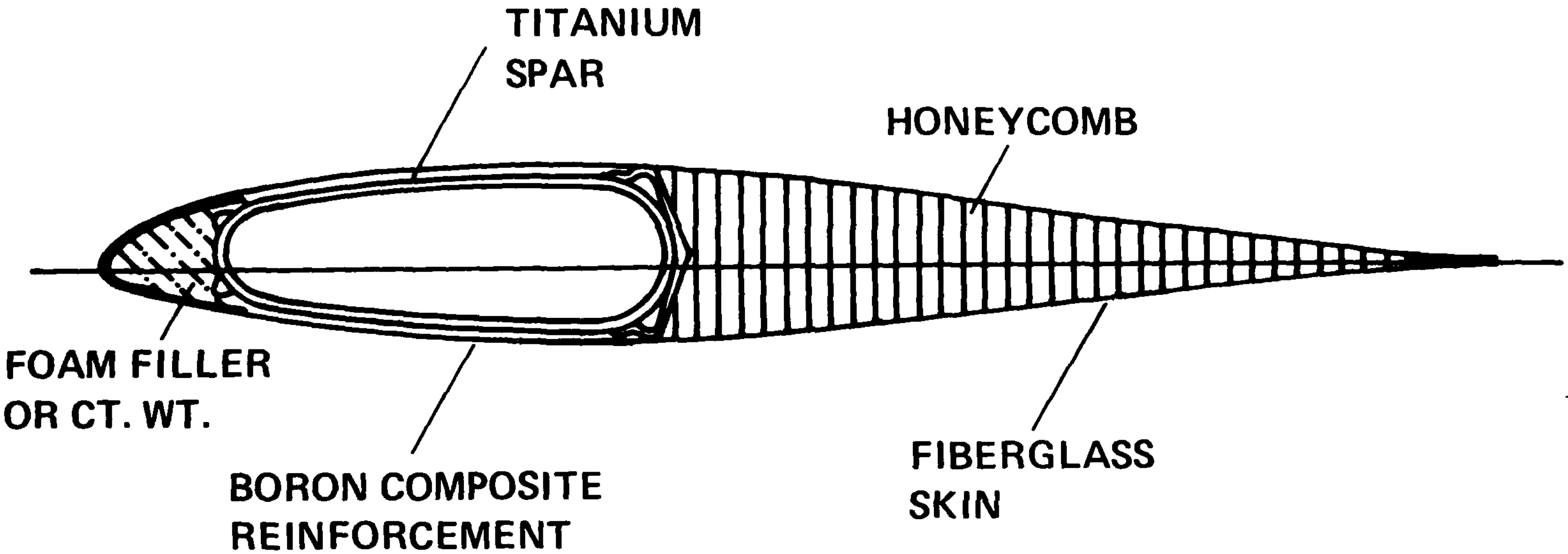

Figure 6. TYPICAL BLADE CROSS SECTION

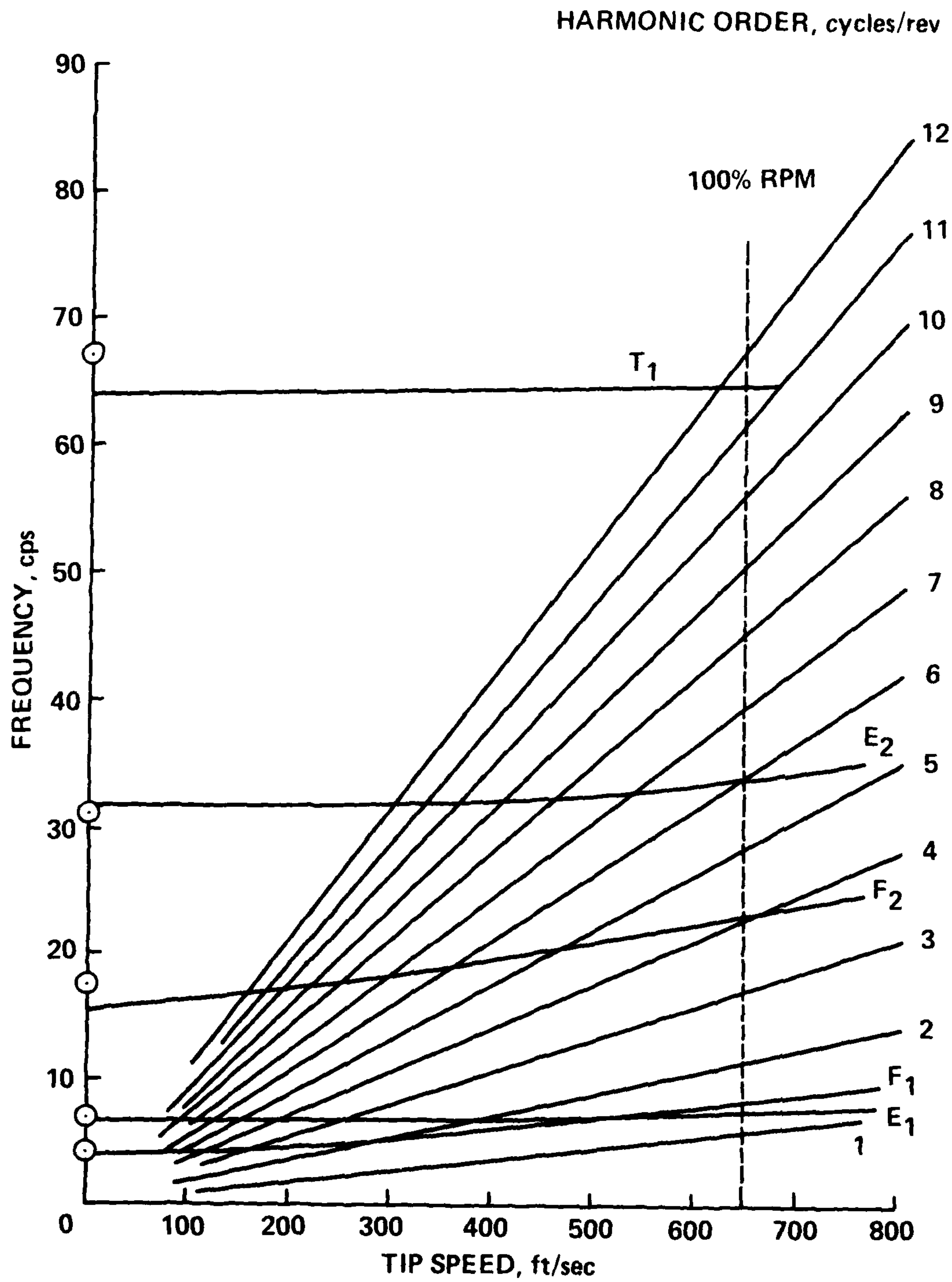

Figure 7. BLADE NATURAL FREQUENCY DIAGRAM

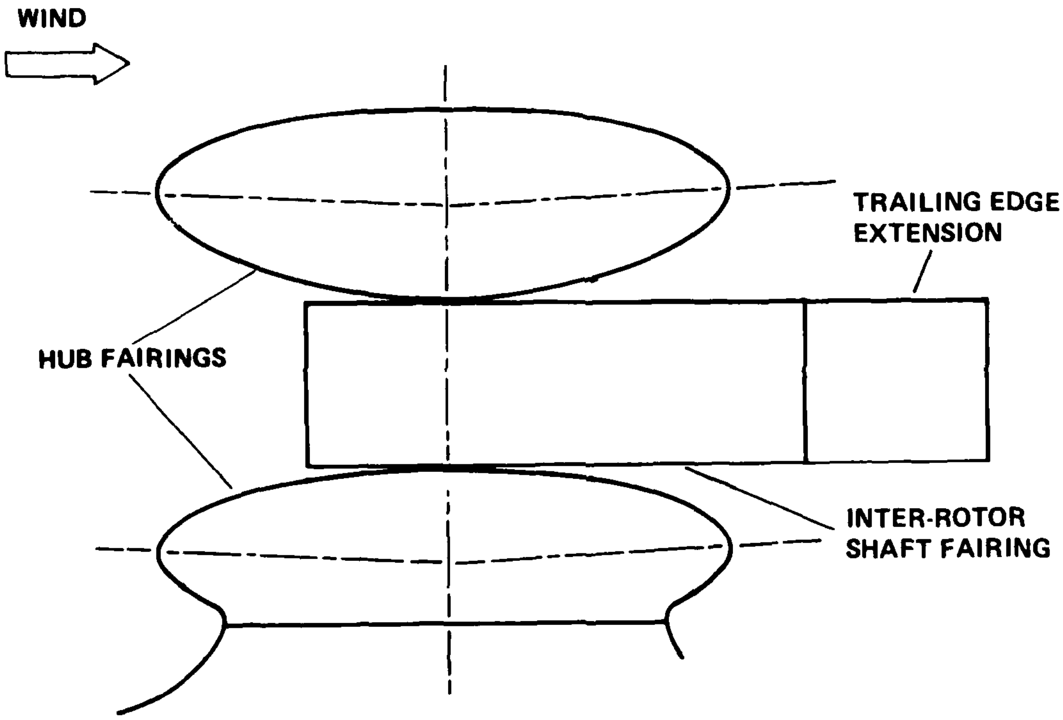

Figure 8. SKETCH OF HUB FAIRINGS

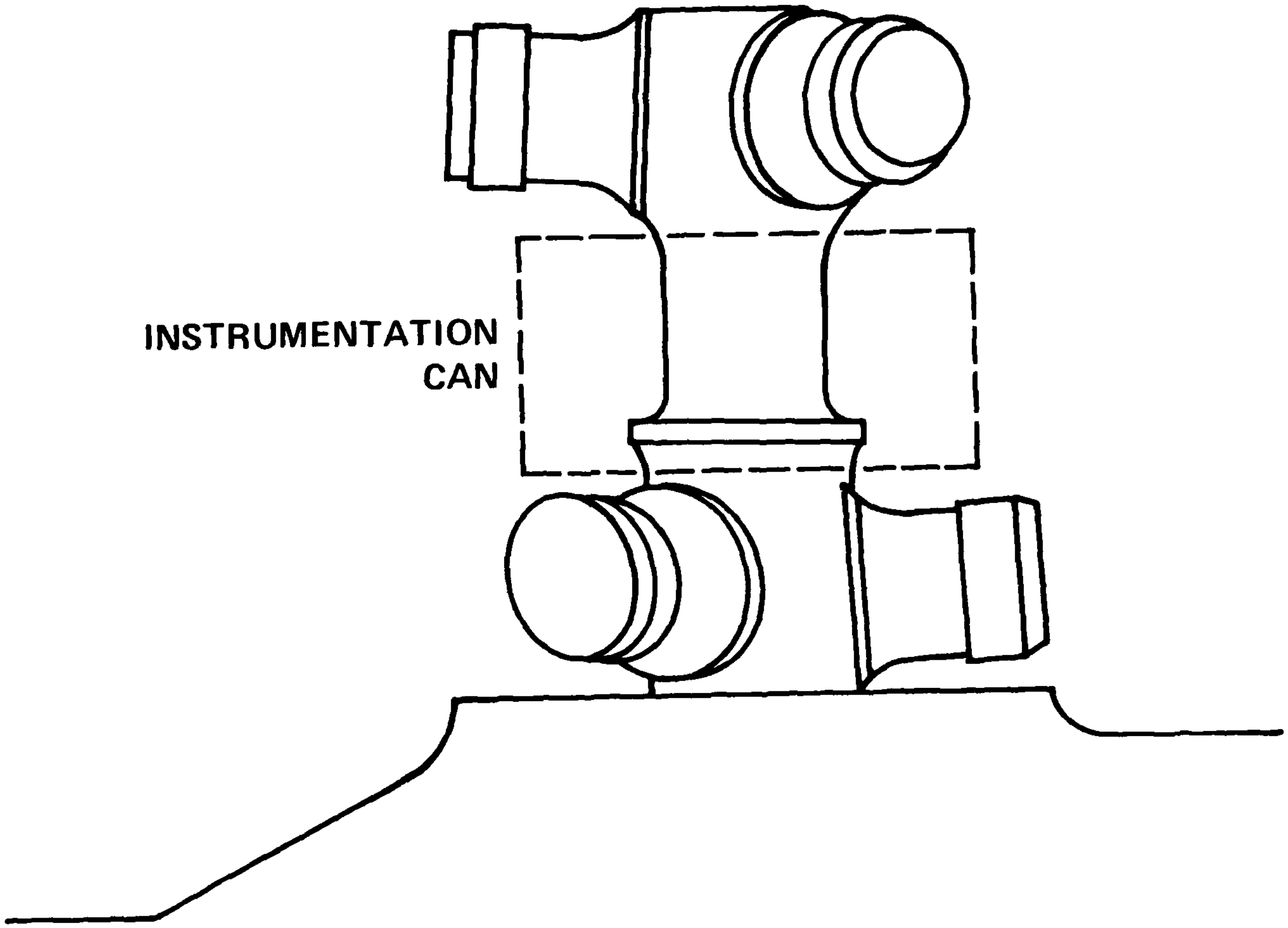

Figure 9. SKETCH OF ROTOR HUB AND INSTRUMENTATION CAN

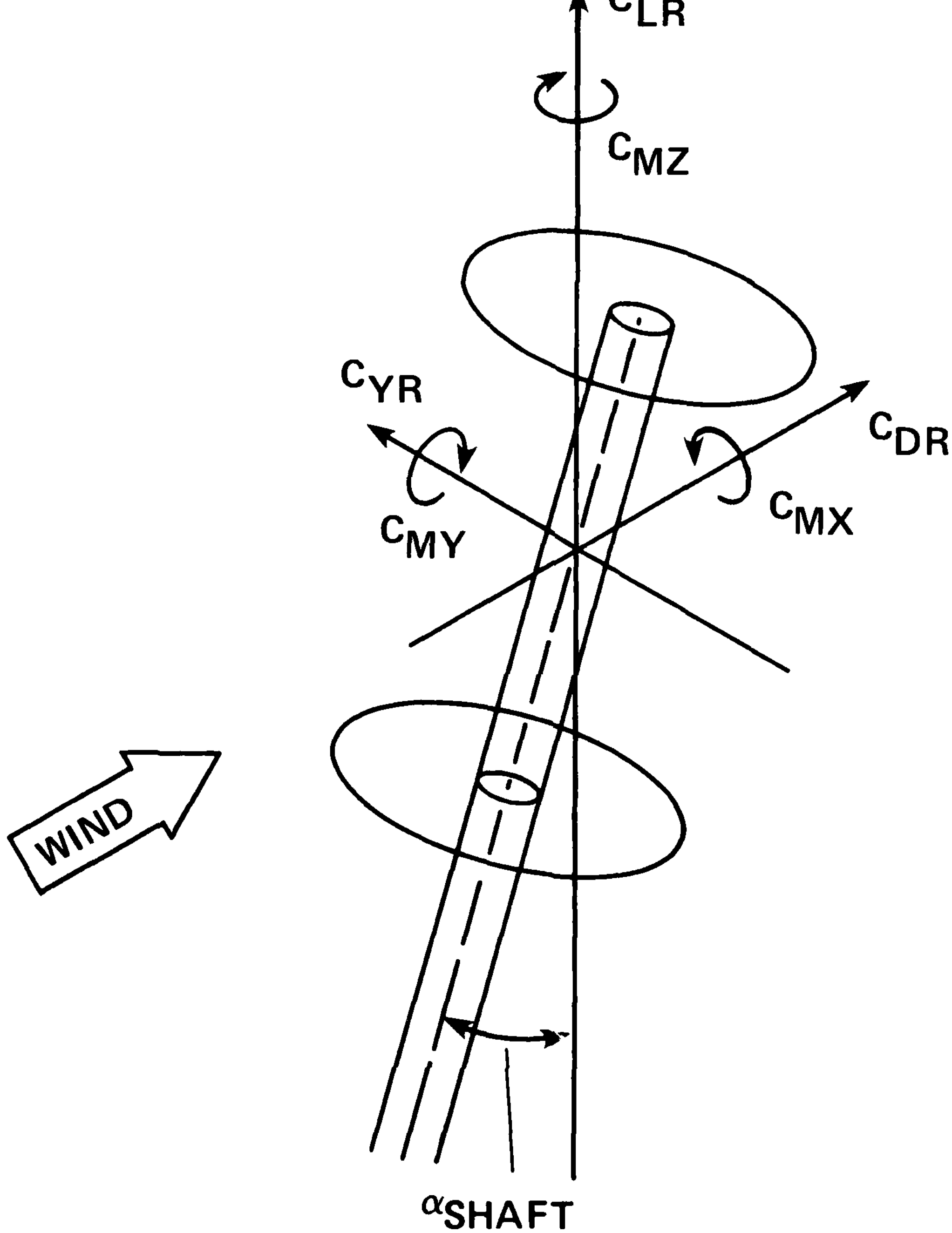

Figure 10. SKETCH OF FORCES AND MOMENTS SHOWING POSITIVE DIRECTIONS

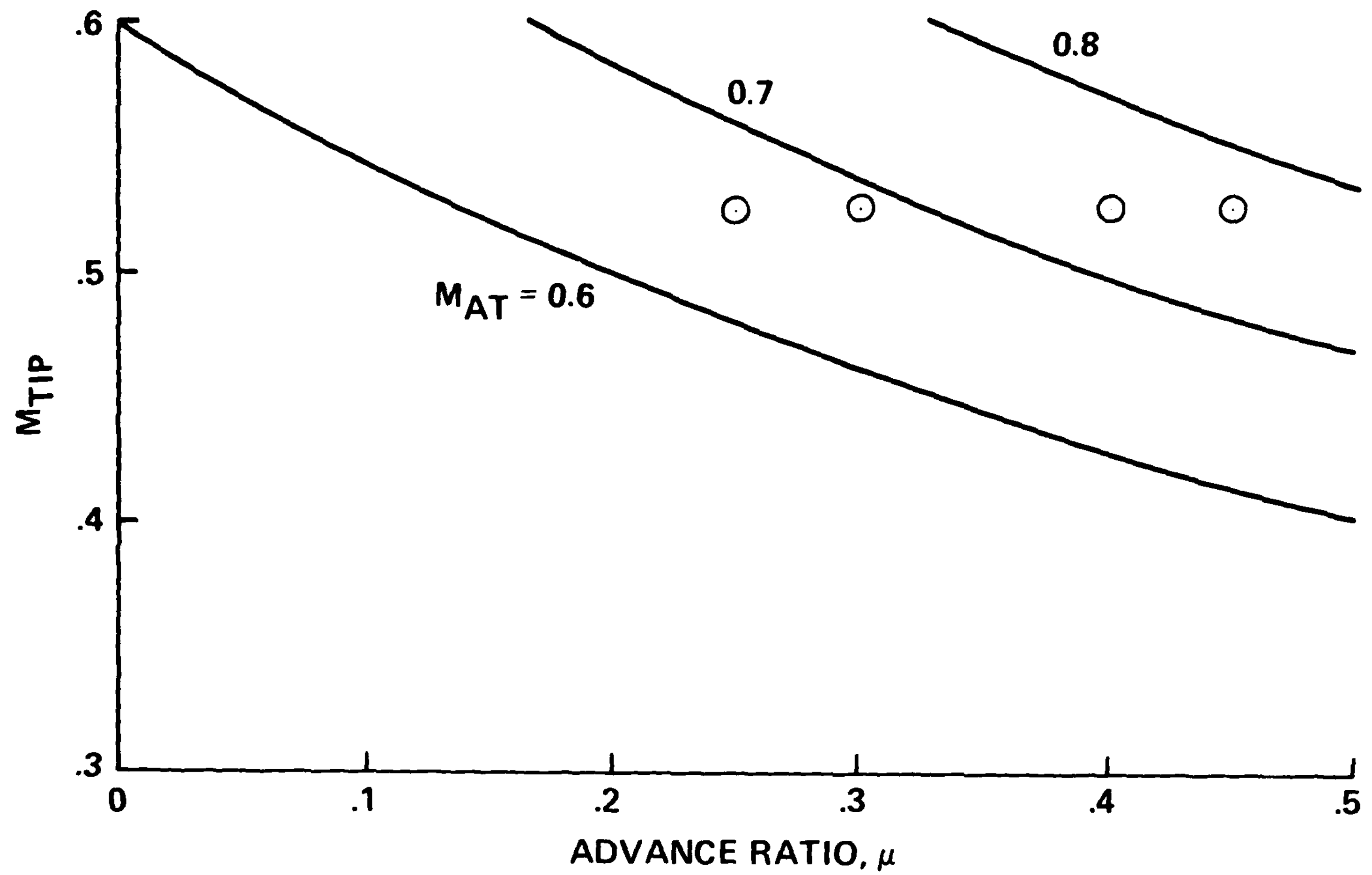

Figure 11. ROTOR OPERATING CONDITIONS

APPENDIX I

Equations Used to Correct for Forces and Moments Produced by Exposed Model Support Struts.

The strut fairings were canted 34° down relative to the horizontal. The lift and drag forces on the fairings were calculated as follows:

ψ = yaw angle, deg, positive nose right

α = corrected angle of attack

"RF" subscript denotes right strut fairing

"LF" subscript denotes left strut fairing

$$\alpha_{RF} = \cos 34° \; \alpha + \sin 34° \; \psi$$

$$\alpha_{LF} = \cos 34° \; \alpha - \sin 34° \; \psi$$

$$C_{LRF} = 0.02698 \; \alpha_{RF} + 1.8 \sin \alpha_{RF} \; |\sin \alpha_{RF}|$$

$$C_{LLF} = 0.02698 \; \alpha_{LF} + 1.8 \sin \alpha_{LF} \; |\sin \alpha_{LF}|$$

$$\text{Lift}_{RF} = 5.22 \; q \; C_{LRF}$$

$$\text{Lift}_{LF} = 5.22 \; q \; C_{LLF}$$

$$C_{DLF} = 0.02698 \; \alpha_{RF} \tan (\alpha_{RF}/2) + 1.8 \sin \alpha_{RF} \; |\sin \alpha_{RF}| \quad \text{(induced)}$$

$$+ \; 0.02002 + 0.016457 \; C_{LRF}^{2} \quad \text{(profile)}$$

$$C_{DLF} = 0.02698 \; \alpha_{LF} \tan (\alpha_{LF}/2) + 1.8 \sin \alpha_{LF} \; |\sin \alpha_{LF}| \quad \text{(induced)}$$

$$+ \; 0.02002 + 0.016457 \; C_{LLF}^{2} \quad \text{(profile)}$$

$$\text{Drag}_{RF} = 5.22 \; q \; C_{DRF}$$

$$\text{Drag}_{LF} = 5.22 \; q \; C_{DLF}$$

$Drag_{RFI} = 0.2947\ q$ (fuselage/fairing interference)

$Drag_{LFI} = 0.2947\ q$ (fuselage/fairing interference)

$Drag_{NT} = 0.75\ q$ (nose strut tip drag)

$Drag_{RFT} = 1.5\ q$ (strut tip drag)

$Drag_{LFT} = 1.5\ q$ (strut tip drag)

The corrections made to the aircraft forces and moments due to the lift and drag on the fairings were as follow:

"U" subscript means uncorrected

"C" subscript means corrected

$$Lift_C = Lift_u - \cos 34° \ (Lift_{RF} + Lift_{LF})$$

$$Drag_C = Drag_C - (Drag_{RF} + Drag_{RFI} + Drag_{RFT} + Drag_{LF} + Drag_{LFI} + Drag_{LFT} + Drag_{NT})$$

$$Side\ Force_C + Side\ Force_u - \sin 34° \ (Lift_{RF} - Lift_{LF})$$

$$\begin{aligned} Pitching\ Moment_C = {} & Pitching\ Moment_u + \cos 34° \ Lift_{RF}\ (X\cos\alpha\cos\psi \\ & + Y\sin\psi - Z\sin\alpha) + \cos 34° \ Lift_{LF}\ (X\cos\alpha\cos\psi \\ & - Y\sin\psi - Z\sin\alpha) + (Drag_{RF} + Drag_{LF})\ (X\sin\alpha + Z\cos\alpha) \\ & + (Drag_{RFI} + Drag_{LFI})\ (X_I \sin\alpha + Z_I \cos\alpha) \\ & + (Drag_{RFT} + Drag_{LFT})\ (X_T \sin\alpha + Z_T \cos\alpha) \\ & + Drag_{NT}\ (Z_N \cos\alpha - X_N \sin\alpha) \end{aligned}$$

$$\text{Rolling Moment}_C = \text{Rolling Moment}_u + \cos 34° \, \text{Lift}_{RF} \, (y\cos\psi - X\sin\psi\cos\alpha)$$

$$- \cos 34° \, \text{Lift}_{LF} \, (Y\cos\psi + Y\sin\psi\cos\alpha) + \sin 34° \, Z\cos\alpha$$

$$(\text{Lift}_{RF} - \text{Lift}_{LF})$$

$$\text{Yawing Moment}_C = \text{Yawing Moment}_u - \text{Drag}_{RF} \, (\cos\psi - X\sin\psi\cos\alpha) + \text{Drag}_{LF}$$

$$(Y\cos\psi + X\sin\psi\cos\alpha) + 2 \, \text{Drag}_{RFI} \, X_I \sin\psi\cos\alpha$$

$$- Y_T \cos\psi \, (\text{Drag}_{RFT} - \text{Drag}_{LFT}) + X_T \sin\psi\cos\psi$$

$$(\text{Drag}_{RFT} - \text{Drag}_{LFT}) - \text{Drag}_{NT} \, X_N \sin\alpha$$

The dimensions X, X_T, X_N etc. are the distances (in feet) between the aircraft moment resolving center (aircraft c.g.) and the locations of the various lift and drag producing components, such as the strut fairing, the strut fairing tip, etc.

$X = 4.845$ ft	$X_T = 4.683$ ft
$Y = 2.925$ ft	$Y_T = 4.167$ ft
$Z = 3.475$ ft	$Z_T = 4.4$ ft
$X_I = 4.976$ ft	$X_N = 8.4$ ft
$X_I = 3.055$ ft	$Z_N = 4.25$ ft

APPENDIX II

Equations Used to Correct for the Thrust of the J60 Engines.

The J60 engines on the ABC were calibrated in an engine test cell before the wind tunnel test. This calibration defined the relationship between static thrust and exhaust pressure ratio (EPR). During the wind tunnel test, the measured EPR and the test cell calibration were used to calculate the static thrust of each engine. This value for the static thrust was analytically corrected to account for the effect on the thrust of the nonzero velocity in the tunnel.

$$\text{Thrust} = \delta\,(T_{EPR} + \Delta T_M) \quad \text{(lbs)}$$

where δ = barometric pressure (in Hg)/29.92

T_{EPR} = static thrust calculated from thrust vs. EPR calibration, lbs

ΔT_M = correction to thrust due to nonzero wind velocity, lbs

The value of T_{EPR} as a function of the measured EPR was determined by a linear interpolation between the nearest two values of EPR and T_{EPR} in the following table:

EPR	T_{EPR}
1.0	0
1.063	200
1.129	400
1.198	600
1.267	800
1.337	1000
1.410	1200
1.486	1400
1.564	1600
1.641	1800
1.719	2000
1.796	2200
1.873	2400
1.948	2600
2.022	2800
2.098	3000

The value of ΔT_M was also determined by linear interpolation. The *interpolation for tunnel* Mach number, M_{tun}, was performed *first and the* interpolation for EPR was performed next.

ΔT_M as a Function of M_{tun} and EPR

M_{tun}

		0	0.05	0.1	0.15	0.2	0.25	0.3
	1.0	0	0	0	0	0	0	0
	1.1	0	-22	-40	-54	-64	-72	-72
	1.2	0	-40	-71	-96	-113	-127	-127
EPR	1.3	0	-57	-101	-135	-160	-179	-179
	1.4-2.0	0	-64	-114	-155	-183	-202	-205
	2.1	0	-64	-114	-155	-183	-202	-192

After the thrust of each J60 engine had been calculated by the above method, the forces and moments produced by the engines were removed from the measured forces and moments using the following equations:

"c" means corrected

"u" means uncorrected

$$\text{Lift}_c = \text{Lift}_u - \sin\alpha\,(T_R + T_L)$$

$$\text{Drag}_c = \text{Drag}_u + \cos\alpha\,(T_R + T_L)$$

$$\text{Pitching Moment}_c = \text{Pitching Moment}_u \;\underline{\underline{-}}\; (T_R + T_L)\,(1.88 \sin\alpha \cos\alpha \;\underline{\underline{+}}\; \cos\alpha\,(1.21 + 1.88 \sin\alpha)$$

$$\text{Rolling Moment}_c = \text{Rolling Moment}_u - 4.42\,(T_L + T_R)\sin\alpha$$

$$\text{Yawing Moment}_c = \text{Yawing Moment}_u \;\underline{\underline{-}}\; 4.42\,(T_R + T_L)\cos\alpha$$

Three errors are evident in these equations which have not been corrected in the data presented in this paper.

(1) the underlined "-" sign in the pitching moment equation should be a "+" sign and the underlined "+" sign should be a "-" sign.

(2) the underlined "-" sign in the yawing moment equation should be a "+" sign.

(3) the effect on the aircraft forces and moments due to aircraft yaw angle changes have not been included in these equations.

The effect of these errors on the data presented here has been evaluated, and in no case does the effect of any error exceed 2% of the data presented. The only exception to this is in Run 10, where significant amounts of auxiliary propulsion thrust were used.

SECTION A

Aircraft Performance Data

DATA IN THE FOLLOWING GROUP OF POINTS SATISFIED THE FOLLOWING SEQUENCE OF CONSTRAINT CODES -
1A

	VKTS / MTUN / QPSF	ALFS,U / ALFS,C / PSI	RPM / J THRUST / BAR	DRAG/Q / LIFT/Q / SIDE/Q	PITCH/Q / YAW/Q / ROLL/Q	TEMP / RHO100
RUN 10						
PT 3	118.7	5.0	343.0	16.76	-209.0	79.0
	0.1766	5.1	0.	25.71	20.3	0.2261
	45.3	0.0	29.96	-0.22	5.5	
PT 4	119.0	2.5	343.0	15.96	-106.3	80.0
	0.1769	2.5	0.	11.67	13.7	0.2257
	45.5	0.0	29.96	-0.37	3.9	
PT 5	118.8	0.0	343.0	15.73	-5.3	80.0
	0.1767	-0.0	0.	-0.44	4.4	0.2257
	45.4	0.0	29.96	-0.22	4.9	
PT 6	119.0	-2.5	342.9	16.05	105.1	80.0
	0.1769	-2.5	0.	-14.09	-0.3	0.2257
	45.5	0.0	29.96	0.31	1.9	
PT 7	119.1	-5.0	342.8	17.14	220.8	80.0
	0.1771	-5.1	0.	-28.08	-3.6	0.2257
	45.6	0.0	29.96	0.59	4.6	
PT 8	119.0	-7.5	342.7	18.90	361.1	80.0
	0.1770	-7.6	0.	-44.30	-6.4	0.2257
	45.5	0.0	29.96	0.53	2.1	
PT 9	118.7	-9.8	342.6	21.93	462.9	80.0
	0.1765	-10.0	0.	-57.43	-6.3	0.2257
	45.3	0.0	29.96	0.95	4.8	
PT 10	178.4	-2.5	342.8	16.11	110.6	90.0
	0.2639	-2.5	0.	-15.42	-5.8	0.2178
	98.8	0.0	29.96	-0.59	7.3	
PT 11	178.3	-3.8	342.6	16.63	183.6	91.0
	0.2635	-3.9	0.	-23.04	-5.6	0.2174
	98.5	0.0	29.96	-0.30	6.4	

	VKTS / MTUN / QPSF	ALFS,U / ALFS,C / PSI	J / THRUST / BAR	DRAG/Q / LIFT/Q / SIDE/Q	PITCH/Q / YAW/Q / ROLL/Q	TEMP / RHO100
PT 12	178.5	0.0	342.8	15.67	-19.3	92.0
	0.2635	-0.0	0.	-2.23	-0.8	0.2170
	98.5	0.0	29.96	-0.29	0.8	
PT 13	178.6	2.5	342.9	15.81	-118.2	93.0
	0.2634	2.5	0.	9.19	4.7	0.2166
	98.4	0.0	29.96	-0.80	6.1	
PT 14	178.5	5.0	343.0	16.58	-241.1	93.0
	0.2633	5.1	0.	21.15	8.8	0.2166
	98.3	0.0	29.96	-0.99	4.9	
RUN 12						
PT 3	119.5	10.0	343.7	18.12	-430.8	74.0
	0.1787	10.1	164.	51.07	12.0	0.2271
	46.2	0.0	29.82	1.00	8.6	
PT 4	119.2	7.5	343.7	16.61	-312.7	74.0
	0.1782	7.6	167.	39.74	14.0	0.2271
	45.9	0.0	29.82	0.91	3.4	
PT 5	119.2	5.0	343.6	15.59	-210.4	74.0
	0.1782	5.1	166.	26.15	17.1	0.2270
	45.9	0.0	29.81	-0.13	9.6	
PT 6	119.3	2.5	343.4	14.97	-103.6	76.0
	0.1780	2.5	164.	12.96	11.6	0.2262
	45.8	0.0	29.81	-0.46	10.5	
PT 7	119.4	0.0	343.3	14.79	-1.7	77.0
	0.1781	-0.0	164.	-0.22	3.1	0.2258
	45.9	0.0	29.81	-0.33	11.9	
PT 8	119.4	-2.5	343.3	15.11	100.9	78.0
	0.1779	-2.5	157.	-13.43	-1.7	0.2254
	45.7	0.0	29.81	0.02	8.6	
PT 9	118.5	-5.0	343.1	15.98	233.2	78.0
	0.1766	-5.1	147.	-28.89	-1.9	0.2254
	45.1	0.0	29.81	-0.13	5.0	

	VKTS MTUN QPSF	ALFS,U ALFS,C PSI	RPM J THRUST BAR	DRAG/Q LIFT/Q SIDE/Q	PITCH/Q YAW/Q ROLL/Q	TEMP RHO100
PT 10	119.0	-7.5	342.9	17.61	390.5	79.0
	0.1772	-7.6	140.	-44.71	-9.5	0.2250
	45.4	0.0	29.81	0.00	6.4	
PT 11	118.8	-9.8	342.9	21.43	475.3	80.0
	0.1766	-10.0	136.	-57.12	-3.4	0.2246
	45.1	0.0	29.81	0.24	1.2	
PT 12	179.2	0.0	343.3	14.62	0.5	84.0
	0.2666	-0.0	18.	-2.89	-1.5	0.2190
	100.2	0.0	29.81	-0.49	8.6	
PT 13	178.6	-3.8	343.1	15.36	197.6	87.0
	0.2649	-3.9	8.	-22.78	-6.7	0.2178
	99.0	0.0	29.81	-0.44	11.9	
PT 14	178.6	-2.5	343.0	14.96	120.4	88.0
	0.2647	-2.5	12.	-15.40	-4.4	0.2175
	98.8	0.0	29.81	-0.61	7.9	
PT 15	178.7	2.5	343.2	14.71	-103.8	90.0
	0.2644	2.5	19.	9.31	3.0	0.2167
	98.6	0.0	29.81	-0.57	10.9	
PT 16	178.9	5.0	343.3	15.09	-219.3	92.0
	0.2641	5.1	19.	22.68	6.0	0.2159
	98.4	0.0	29.81	-0.60	8.1	
PT 17	178.8	7.5	343.4	16.51	-364.9	93.0
	0.2637	7.6	21.	34.10	8.6	0.2155
	98.1	0.0	29.81	-0.02	10.9	
PT 18	178.7	10.0	343.4	17.76	-360.5	94.0
	0.2634	10.1	18.	50.01	4.1	0.2152
	97.9	0.0	29.81	0.30	14.4	
PT 19	178.9	10.0	22.2	17.21	-368.2	96.0
	0.2632	10.1	17.	49.76	-1.3	0.2144
	97.7	0.0	29.81	-0.07	14.8	

	VKTS MTUN QPSF	ALFS,U ALFS,C PSI	RPM J THRUST BAR	DRAG/Q LIFT/Q SIDE/Q	PITCH/Q YAW/Q ROLL/Q	TEMP RHO100
PT 20	179.2	7.5	18.0	16.06	-278.2	98.0
	0.2631	7.6	22.	37.23	4.9	0.2136
	97.7	0.0	29.81	-0.52	13.9	
PT 21	179.1	5.0	18.9	14.91	-169.9	98.0
	0.2630	5.1	23.	24.15	4.0	0.2136
	97.6	0.0	29.81	-0.15	12.3	
PT 22	179.2	2.5	24.6	14.19	-97.0	99.0
	0.2629	2.5	23.	8.85	5.0	0.2133
	97.5	0.0	29.81	0.31	14.4	
PT 23	177.9	0.0	18.3	14.05	18.3	87.0
	0.2639	-0.0	22.	-3.26	-2.6	0.2177
	98.2	0.0	29.78	-0.92	7.0	
PT 24	178.3	-2.5	18.3	14.41	132.2	90.0
	0.2638	-2.5	15.	-15.88	-6.3	0.2165
	98.1	0.0	29.78	-0.60	6.8	
PT 25	178.3	-3.8	18.3	14.86	205.3	91.0
	0.2635	-3.9	9.	-23.75	-10.5	0.2161
	97.9	0.0	29.78	-0.57	7.5	
PT 26	119.5	-9.8	18.3	21.38	450.9	90.0
	0.1761	-9.9	126.	-55.56	-4.9	0.2203
	44.8	0.0	29.78	0.25	4.1	
PT 27	119.8	-7.5	18.3	16.62	389.3	90.0
	0.1765	-7.6	127.	-44.92	-9.4	0.2203
	45.0	0.0	29.78	0.31	9.4	
PT 28	120.0	-5.0	18.3	14.86	239.5	89.0
	0.1770	-5.1	131.	-29.03	-7.9	0.2206
	45.3	0.0	29.78	-0.31	11.3	
PT 29	119.6	-2.5	18.3	14.00	111.6	89.0
	0.1764	-2.5	141.	-14.24	-2.2	0.2207
	45.0	0.0	29.78	-0.49	10.3	

	VKTS QTUN QPSF	ALFS,J ALFS,C PSI	RPM J THRUST BAR	DRAG/Q LIFT/Q SIDE/Q	PITCH/Q YAW/Q ROLL/Q	TEMP RHO100
PT 30	119.8 0.1766 45.1	0.0 -0.0 0.0	18.3 143. 29.78	13.67 -1.11 -0.55	9.1 0.0 11.4	89.0 0.2207
PT 31	119.5 0.1762 44.9	2.5 2.5 0.0	18.3 148. 29.78	13.74 11.37 -0.76	-88.0 4.6 11.1	89.0 0.2207
PT 32	119.3 0.1759 44.7	5.0 5.1 0.0	18.3 148. 29.78	14.49 25.01 0.27	-199.8 8.9 12.2	89.0 0.2207
PT 33	119.4 0.1761 44.8	7.5 7.6 0.0	18.3 148. 29.78	15.69 39.04 -0.11	-312.2 7.0 14.6	89.0 0.2207
PT 34	119.5 0.1762 44.8	10.0 10.1 0.0	18.3 147. 29.78	17.01 52.51 -0.27	-435.9 4.9 13.9	90.0 0.2203
PT 35	119.5 0.1762 44.9	0.0 -0.0 0.0	18.3 0. 29.78	14.63 -2.00 0.78	12.8 12.0 11.6	89.0 0.2207
PT 36	6.0 0.0088 0.1	0.0 0.0 0.0	18.3 0. 29.78	161.54 -305.05 95.92	3111.2 2.6 1077.6	89.0 0.2237
RUN 13 PT 3	119.5 0.1784 46.0	10.0 10.1 0.0	344.2 170. 29.79	15.37 25.56 0.48	-288.0 17.1 22.0	76.0 0.2260
PT 4	119.6 0.1784 46.0	10.0 10.1 0.0	344.3 168. 29.79	18.30 51.39 0.57	-413.3 12.3 19.7	77.0 0.2256
PT 5	119.7 0.1783 45.9	7.5 7.6 0.0	344.2 166. 29.79	16.65 38.54 0.26	-285.8 12.8 22.1	78.0 0.2252

	VKTS MTUN QPSF	ALFS,U ALFS,C PSI	RPM J THRUST BAR	DRAG/Q LIFT/Q SIDE/Q	PITCH/Q YAW/Q ROLL/Q	TEMP RHO100
PT 6	119.6	5.0	344.1	15.40	-198.6	79.0
	0.1780	5.1	166.	25.57	13.7	0.2248
	45.8	0.0	29.79	0.72	20.8	
PT 7	119.8	2.5	344.0	14.75	-93.0	80.0
	0.1782	2.5	164.	12.08	10.5	0.2244
	45.9	0.0	29.79	0.89	19.2	
PT 8	119.5	0.0	343.9	14.63	7.3	80.0
	0.1776	-0.0	161.	-0.66	6.4	0.2244
	45.6	0.0	29.79	1.01	20.7	
PT 9	119.4	-2.5	343.8	15.04	114.9	81.0
	0.1775	-2.5	157.	-14.16	6.4	0.2240
	45.5	0.0	29.79	1.01	19.1	
PT 10	119.5	-5.0	343.8	15.92	242.0	82.0
	0.1775	-5.1	149.	-29.83	-0.5	0.2236
	45.5	0.0	29.79	1.80	17.5	
PT 11	119.3	-7.5	343.8	17.79	387.4	82.0
	0.1771	-7.6	143.	-45.22	-1.7	0.2236
	45.3	0.0	29.79	2.03	21.5	
PT 12	118.9	-9.8	343.6	21.81	469.4	83.0
	0.1763	-10.0	137.	-56.81	-2.3	0.2232
	44.9	0.0	29.79	2.03	11.7	
PT 13	178.5	-3.8	343.7	15.14	206.0	91.0
	0.2638	-3.9	12.	-23.98	-5.1	0.2162
	98.2	0.0	29.79	0.77	17.2	
PT 14	178.6	-2.5	343.8	14.73	138.5	92.0
	0.2637	-2.5	14.	-15.28	-2.1	0.2158
	93.0	0.0	29.79	0.45	21.1	
PT 15	178.2	0.0	343.9	14.27	21.1	93.0
	0.2628	-0.0	21.	-3.43	-0.2	0.2154
	97.4	0.0	29.79	0.45	16.7	

	VKTS MTUN QPSF	ALFS,U ALFS,C PSI	RPM J THRUST BAR	DRAG/Q LIFT/Q SIDE/Q	PITCH/Q YAW/Q ROLL/Q	TEMP RHO100
PT 16	178.3	2.5	344.0	14.42	-93.8	95.0
	0.2624	2.5	24.	9.76	0.7	0.2148
	97.2	0.0	29.80	0.11	18.0	
PT 17	178.4	5.0	344.1	15.14	-169.3	97.0
	0.2622	5.1	23.	23.99	4.0	0.2140
	97.0	0.0	29.80	-0.13	15.2	
PT 18	178.3	7.5	344.1	16.35	-266.2	97.0
	0.2620	7.6	24.	36.91	7.2	0.2140
	96.9	0.0	29.80	-0.34	15.1	
PT 19	178.3	10.0	344.2	17.86	-360.6	98.0
	0.2618	10.1	23.	49.21	2.9	0.2136
	95.7	0.0	29.80	-0.50	14.8	
PT 20	178.8	0.0	31.5	13.55	30.4	101.0
	0.2618	-0.0	21.	-4.28	-5.8	0.2125
	96.7	0.0	29.80	-0.47	12.8	
PT 21	178.6	10.0	31.5	17.13	-364.6	102.0
	0.2614	10.1	20.	49.42	-0.7	0.2121
	96.4	0.0	29.80	-1.67	14.2	
PT 22	178.9	7.5	2.0	15.65	-270.1	103.0
	0.2616	7.6	23.	36.54	0.5	0.2117
	96.6	0.0	29.80	-1.56	13.3	
PT 23	178.7	5.0	18.6	14.34	-160.9	103.0
	0.2612	5.1	25.	23.04	-1.8	0.2118
	96.3	0.0	29.80	-1.15	12.4	
PT 24	178.8	2.5	18.6	13.62	-81.1	104.0
	0.2611	2.5	25.	8.88	-3.0	0.2114
	96.2	0.0	29.80	-0.48	12.3	
PT 25	179.0	-2.5	18.6	13.96	149.1	105.0
	0.2612	-2.5	16.	-17.22	-5.9	0.2110
	96.3	0.0	29.80	-0.43	15.6	

	VKTS	ALFS,U	J	RPM	DRAG/Q	PITCH/Q	TEMP
	MTUN	ALFS,C		THRUST	LIFT/Q	YAW/Q	RHO100
	QPSF	PSI		BAR	SIDE/Q	ROLL/Q	
PT 26	178.8	-3.8		18.6	14.45	209.2	105.0
	0.2609	-3.9		14.	-24.14	-4.8	0.2110
	96.1	0.0		29.80	-0.43	12.1	
PT 27	119.0	-9.8		18.6	21.26	430.4	103.0
	0.1733	-9.9		135.	-54.81	-3.6	0.2154
	43.5	0.0		29.80	0.64	12.0	
PT 28	119.5	-7.5		18.6	16.51	376.6	102.0
	0.1741	-7.6		139.	-44.85	-5.8	0.2158
	43.9	0.0		29.80	0.78	16.0	
PT 29	119.6	-5.0		18.6	14.75	243.5	101.0
	0.1745	-5.1		144.	-29.74	-4.4	0.2162
	44.0	0.0		29.80	0.16	20.1	
PT 30	119.7	-2.5		18.6	13.88	122.0	101.0
	0.1747	-2.5		147.	-15.99	-2.1	0.2161
	44.1	0.0		29.80	-0.27	19.7	
PT 31	119.6	0.0		18.6	13.49	9.1	100.0
	0.1747	-0.0		149.	-2.26	0.4	0.2165
	44.2	0.0		29.80	-0.59	14.2	
PT 32	119.5	2.5		18.6	13.55	-97.8	100.0
	0.1746	2.5		153.	10.90	5.4	0.2165
	44.1	0.0		29.80	-1.04	19.8	
PT 33	119.4	5.0		18.6	14.21	-202.4	99.0
	0.1746	5.1		156.	23.68	5.6	0.2169
	44.1	0.0		29.80	-1.00	17.6	
PT 34	119.4	7.5		18.6	15.55	-310.6	99.0
	0.1745	7.6		157.	37.57	7.0	0.2169
	44.1	0.0		29.80	-1.48	23.1	
PT 35	119.2	10.0		18.6	17.18	-417.8	99.0
	0.1743	10.1		157.	50.19	2.6	0.2169
	43.9	0.0		29.80	-1.14	20.3	

	VKTS MTUN QPSF	ALFS,U ALFS,C PSI	RPM J THRUST BAR	DRAG/Q LIFT/Q SIDE/Q	PITCH/Q YAW/Q ROLL/Q	TEMP RHO100
PT 36	119.4	0.0	18.6	14.35	11.6	98.0
	0.1747	-0.0	0.	-2.72	3.2	0.2173
	44.1	0.0	29.80	-0.70	20.6	
RUN 15						
PT 3	119.1	0.0	344.7	15.06	5.2	73.0
	0.1782	-0.0	164.	-4.10	1.2	0.2294
	46.3	0.0	30.07	1.08	8.4	
PT 4	119.7	10.0	344.9	18.79	-455.2	74.0
	0.1790	10.1	166.	49.16	1.8	0.2290
	46.7	0.0	30.07	0.83	7.8	
PT 5	119.5	7.5	344.9	17.19	-315.6	75.0
	0.1785	7.6	164.	36.91	9.5	0.2286
	46.5	0.0	30.07	0.67	5.2	
PT 6	119.1	5.0	344.8	15.87	-206.6	75.0
	0.1780	5.1	168.	22.08	6.8	0.2286
	46.2	0.0	30.07	0.45	5.7	
PT 7	119.2	2.5	344.7	15.21	-106.8	76.0
	0.1779	2.5	165.	8.96	6.3	0.2282
	46.2	0.0	30.07	0.65	6.1	
PT 8	119.2	0.0	344.6	15.10	8.1	77.0
	0.1778	-0.0	162.	-4.33	4.7	0.2277
	46.1	0.0	30.07	0.82	6.4	
PT 9	119.2	-2.5	344.5	15.50	119.8	77.0
	0.1777	-2.5	159.	-17.13	4.0	0.2277
	46.1	0.0	30.07	0.78	11.6	
PT 10	119.2	-5.0	344.4	16.56	220.3	78.0
	0.1775	-5.1	151.	-31.13	6.4	0.2273
	46.0	0.0	30.07	0.89	8.5	
PT 11	119.2	-7.5	344.3	18.09	367.1	79.0
	0.1774	-7.6	140.	-46.46	2.5	0.2269
	45.9	0.0	30.07	1.07	8.0	

	VKTS MTUN QPSF	ALFS,U ALFS,C PSI	RPM J THRUST BAR	DRAG/Q LIFT/Q SIDE/Q	PITCH/Q YAW/Q ROLL/Q	TEMP RHO100
PT 12	119.2	-9.8	344.3	22.56	412.6	79.0
	0.1774	-9.9	137.	-55.77	11.4	0.2270
	45.9	0.0	30.08	1.15	-4.2	
PT 13	178.5	-3.8	344.6	15.81	180.6	85.0
	0.2653	-3.9	9.	-25.04	-3.5	0.2206
	100.1	0.0	30.08	0.55	11.4	
PT 14	178.4	-2.5	344.6	15.34	118.0	86.0
	0.2648	-2.5	13.	-18.79	-1.5	0.2202
	99.8	0.0	30.09	0.52	13.5	
PT 15	178.0	0.0	344.8	14.94	3.6	87.0
	0.2641	-0.0	22.	-6.24	-0.1	0.2199
	99.3	0.0	30.08	0.24	10.5	
PT 16	178.2	2.5	344.9	14.95	-99.7	88.0
	0.2641	2.5	24.	5.92	4.3	0.2195
	99.3	0.0	30.08	0.27	6.6	
PT 17	178.3	5.0	344.9	15.65	-179.5	89.0
	0.2640	5.1	23.	21.63	3.7	0.2191
	99.2	0.0	30.08	-0.18	7.4	
PT 18	178.4	7.5	344.9	16.84	-297.5	90.0
	0.2639	7.6	23.	35.96	5.0	0.2186
	99.1	0.0	30.07	-0.61	2.0	
PT 19	178.3	10.0	344.9	18.33	-389.1	92.0
	0.2632	10.1	22.	47.85	2.5	0.2178
	98.6	0.0	30.07	-0.57	8.4	
PT 20	178.4	0.0	18.2	14.76	24.4	94.0
	0.2629	-0.0	23.	-7.66	2.7	0.2171
	98.4	0.0	30.07	0.92	9.3	
RUN 17						
PT 2	60.4	-5.0	343.4	16.75	123.3	68.0
	0.0906	-5.1	249.	-24.78	-19.0	0.2335
	12.1	0.0	30.00	-0.33	28.5	

	VKTS MTUN QPSF	ALFS,U ALFS,C PSI	J	RPM THRUST BAR	DRAG/Q LIFT/Q SIDE/Q	PITCH/Q YAW/Q ROLL/Q	TEMP RHO100
PT 4	60.2 0.0904 12.1	-2.5 -2.5 0.0		343.5 254. 30.00	16.92 -7.69 0.08	15.9 2.2 27.9	68.0 0.2335
PT 5	60.1 0.0901 12.0	0.0 0.0 0.0		343.6 253. 30.00	16.74 5.41 -0.08	-114.5 0.5 24.0	68.0 0.2335
PT 6	60.1 0.0901 12.0	2.5 2.5 0.0		343.6 255. 30.00	16.42 18.14 -0.42	-174.0 0.4 25.1	69.0 0.2331
PT 7	60.0 0.0899 11.9	5.0 5.1 0.0		343.5 257. 30.00	17.09 30.95 -1.09	-253.7 0.0 29.8	70.0 0.2327
PT 8	60.0 0.0899 11.9	7.5 7.6 0.0		343.4 254. 30.00	18.06 44.10 -1.26	-344.3 5.9 22.4	70.0 0.2327
PT 9	59.6 0.0893 11.8	10.0 10.2 0.0		343.4 257. 30.00	20.35 60.96 -1.27	-414.0 11.1 17.4	70.0 0.2327
PT 10	90.0 0.1345 26.5	10.0 10.1 0.0		343.6 226. 30.00	20.98 53.82 -0.60	-444.1 5.4 9.1	74.0 0.2299
PT 11	89.9 0.1343 26.5	7.5 7.6 0.0		343.6 229. 30.00	18.74 40.81 -0.72	-321.1 5.2 5.2	74.0 0.2299
PT 12	90.0 0.1342 26.4	5.0 5.1 0.0		343.5 225. 30.00	18.41 25.59 0.68	-229.0 3.3 4.8	75.0 0.2295
PT 13	89.8 0.1340 26.4	2.5 2.5 0.0		343.5 223. 30.00	17.61 12.38 -0.08	-121.4 5.4 6.6	75.0 0.2295

	VKTS MTUN QPSF	ALFS,U ALFS,C PSI	RPM J THRUST BAR	DRAG/Q LIFT/Q SIDE/Q	PITCH/Q YAW/Q ROLL/Q	TEMP RHO100
PT 14	90.2	0.0	343.4	17.43	-42.5	75.0
	0.1346	-0.0	223.	-1.13	4.9	0.2294
	26.6	0.0	30.00	0.64	749.5	
PT 15	90.0	-2.5	343.3	17.54	69.2	78.0
	0.1338	-2.5	214.	-12.81	-4.3	0.2282
	26.3	0.0	30.00	0.42	4410.1	
PT 16	89.9	-5.0	343.3	18.20	178.9	79.0
	0.1337	-5.1	208.	-27.20	-8.7	0.2277
	26.2	0.0	29.99	0.61	11.5	
PT 17	119.2	-9.8	343.3	23.51	392.3	82.0
	0.1770	-9.9	136.	-54.88	-3.2	0.2251
	45.6	0.0	29.99	-0.02	12.8	
PT 18	119.7	-7.5	343.3	19.41	312.8	82.0
	0.1777	-7.6	137.	-43.73	-5.5	0.2250
	45.9	0.0	29.99	0.52	16.3	
PT 19	119.8	-5.0	343.4	17.82	180.9	83.0
	0.1777	-5.1	144.	-29.22	-2.5	0.2246
	45.9	0.0	29.99	0.48	17.5	
PT 20	119.7	-2.5	343.4	16.92	77.3	83.0
	0.1776	-2.5	146.	-15.36	1.3	0.2246
	45.9	0.0	29.99	0.57	16.6	
PT 21	119.5	0.0	343.4	16.57	-19.9	84.0
	0.1771	-0.0	154.	-3.50	2.6	0.2242
	45.6	0.0	29.99	0.53	17.9	
PT 22	119.4	2.5	343.5	16.68	-115.7	84.0
	0.1769	2.5	157.	8.99	6.6	0.2242
	45.6	0.0	29.99	0.42	139.0	
PT 23	119.3	5.0	343.5	17.39	-231.3	84.0
	0.1767	5.1	157.	22.61	9.5	0.2243
	45.4	0.0	29.99	0.24	699.1	

	VKTS MTUN QPSF	ALFS.U ALFS.C PSI	RPM J THRUST BAR	DRAG/Q LIFT/Q SIDE/Q	PITCH/Q YAW/Q ROLL/Q	TEMP RHO100
PT 24	119.4 0.1768 45.5	7.5 7.6 0.0	343.5 156. 29.99	18.64 36.90 -0.46	-344.7 14.8 18.9	85.0 0.2238
PT 25	119.3 0.1766 45.4	10.0 10.1 0.0	343.5 157. 29.99	20.27 48.86 -0.55	-496.5 14.1 16.2	85.0 0.2238
PT 26	119.2 0.1762 45.2	0.0 0.0 -15.0	343.3 155. 29.99	23.28 5.85 -40.76	-157.6 295.0 -144.1	86.0 0.2234
PT 27	119.3 0.1764 45.3	0.0 0.0 -12.5	343.3 157. 29.99	21.03 2.98 -33.18	-111.1 235.4 -107.1	86.0 0.2234
PT 28	119.3 0.1763 45.2	0.0 0.0 -10.0	343.3 155. 29.99	19.50 0.88 -26.25	-80.2 196.3 -82.2	87.0 0.2230
PT 29	119.4 0.1764 45.3	0.0 0.0 -7.5	343.3 157. 29.99	18.37 0.00 -19.89	-58.6 148.9 -56.9	87.0 0.2230
PT 30	119.6 0.1766 45.4	0.0 -0.0 -5.0	343.3 153. 29.99	17.53 -2.20 -12.44	-36.6 101.7 206.9	88.0 0.2226
PT 31	119.5 0.1764 45.3	0.0 -0.0 -2.5	343.3 154. 29.99	16.89 -2.98 -5.82	-26.0 53.0 -24.9	88.0 0.2226
PT 32	119.7 0.1767 45.4	0.0 -0.0 2.5	343.3 152. 29.99	16.77 -2.97 7.15	-31.7 -35.0 6.9	88.0 0.2226
PT 33	119.7 0.1765 45.3	0.0 -0.0 5.0	343.3 154. 29.99	17.23 -1.10 13.65	-55.7 -60.4 22.2	89.0 0.2222

	VKTS / MTUN / QPSF	ALFS,U / ALFS,C / PSI	RPM / J THRUST / BAR	DRAG/Q / LIFT/Q / SIDE/Q	PITCH/Q / YAW/Q / ROLL/Q	TEMP / RHO100
PT 34	119.3	0.0	343.2	17.99	-84.7	89.0
	0.1767	0.0	151.	0.55	-126.1	0.2222
	45.4	7.5	29.99	20.47	41.1	
PT 35	119.9	0.0	343.4	19.09	-101.4	90.0
	0.1767	0.0	150.	1.76	-176.8	0.2218
	45.4	10.0	29.99	27.36	69.5	
PT 36	120.0	0.0	343.4	20.62	-146.1	90.0
	0.1768	0.0	150.	4.39	-225.8	0.2218
	45.5	12.5	29.99	34.64	96.8	
PT 37	119.3	0.0	343.3	21.90	-176.0	90.0
	0.1765	0.0	150.	6.39	-252.8	0.2218
	45.3	14.0	29.99	38.97	119.3	
PT 38	120.0	0.0	4.6	17.46	-15.2	90.0
	0.1768	-0.0	0.	-5.93	-0.1	0.2218
	45.5	0.0	29.99	0.40	12.6	
RUN 18						
PT 3	149.4	10.0	344.9	20.10	-445.7	78.0
	0.2230	10.1	107.	47.24	4.0	0.2249
	71.5	0.0	29.99	-0.06	5.5	
PT 4	149.7	7.5	344.7	18.60	-331.0	81.0
	0.2228	7.6	109.	34.81	8.5	0.2236
	71.4	0.0	29.99	-0.32	5.9	
PT 5	149.3	5.0	344.6	17.44	-210.7	82.0
	0.2220	5.1	113.	20.93	4.8	0.2233
	70.9	0.0	29.99	0.20	5.4	
PT 6	149.5	2.5	344.4	16.87	-99.4	83.0
	0.2220	2.5	108.	7.53	3.1	0.2229
	70.9	0.0	29.99	0.34	1.9	
PT 7	149.4	0.0	344.2	16.76	9.3	83.0
	0.2219	-0.0	101.	-4.16	1.6	0.2229
	70.8	0.0	29.99	0.47	9.3	

	VKTS MTUN QPSF	ALFS,U ALFS,C PSI	RPM J THRUST BAR	DRAG/Q LIFT/Q SIDE/Q	PITCH/Q YAW/Q ROLL/Q	TEMP RHO100
PT 8	149.3	-2.5	344.1	17.10	93.0	84.0
	0.2217	-2.5	93.	-17.31	-5.2	0.2225
	70.7	0.0	29.99	0.89	5.1	
PT 9	149.5	-5.0	344.1	18.06	205.7	85.0
	0.2217	-5.1	87.	-30.13	-5.5	0.2220
	70.7	0.0	29.99	0.44	7.0	
PT 10	177.9	-3.8	344.0	17.50	154.7	91.0
	0.2629	-3.9	10.	-25.10	-5.9	0.2177
	98.2	0.0	29.99	0.83	8.7	
PT 11	178.5	-2.5	344.0	17.08	94.1	93.0
	0.2633	-2.5	15.	-18.77	-6.4	0.2169
	98.4	0.0	29.99	0.63	9.7	
PT 12	178.9	0.0	344.2	16.68	-11.1	94.0
	0.2636	-0.0	25.	-5.82	-0.9	0.2165
	98.7	0.0	29.99	0.18	8.2	
PT 13	179.0	2.5	344.2	16.80	-115.5	96.0
	0.2633	2.5	24.	5.32	-1.3	0.2157
	98.4	0.0	29.99	0.53	6.7	
PT 14	178.9	5.0	344.3	17.36	-248.4	97.0
	0.2629	5.0	25.	17.70	6.2	0.2153
	98.2	0.0	29.99	-0.32	8.4	
PT 15	178.8	7.5	344.3	18.61	-305.7	98.0
	0.2625	7.6	29.	35.20	5.7	0.2150
	97.9	0.0	29.99	-0.64	13.8	
PT 16	178.8	10.0	344.3	19.98	-399.3	99.0
	0.2623	10.1	25.	47.86	1.0	0.2146
	97.7	0.0	29.99	-0.21	10.2	
PT 17	178.8	10.0	14.1	19.67	-427.2	103.0
	0.2614	10.1	24.	47.94	-5.1	0.2131
	97.1	0.0	29.99	-1.41	11.9	

	VKTS MTUN QPSF	ALFS,U ALFS,C PSI	RPM J THRUST BAR	DRAG/Q LIFT/Q SIDE/Q	PITCH/Q YAW/Q ROLL/Q	TEMP RHO100
PT 18	178.2	7.5	14.1	18.46	-321.4	103.0
	0.2605	7.6	30.	34.81	-3.6	0.2131
	96.5	0.0	29.99	-1.32	6.3	
PT 19	178.4	5.0	14.1	17.53	-265.0	104.0
	0.2606	5.0	28.	17.97	-4.7	0.2128
	96.5	0.0	29.99	-0.83	5.6	
PT 20	177.7	2.5	14.1	16.96	-124.6	105.0
	0.2592	2.5	29.	4.29	-7.5	0.2125
	95.5	0.0	29.99	-0.03	6.2	
PT 21	178.6	0.0	14.1	16.95	-10.0	106.0
	0.2604	-0.0	24.	-7.72	-8.8	0.2120
	96.4	0.0	29.99	0.35	6.7	
PT 22	178.5	-2.5	14.1	17.29	88.6	106.0
	0.2602	-2.6	15.	-19.26	-5.8	0.2120
	96.2	0.0	29.99	0.61	5.1	
PT 23	178.4	-3.8	14.1	17.55	138.9	107.0
	0.2599	-3.9	8.	-24.59	-6.2	0.2117
	96.0	0.0	29.99	0.53	8.3	
PT 24	119.2	-9.8	14.1	23.60	378.7	104.0
	0.1735	-9.9	136.	-54.13	-3.4	0.2163
	43.8	0.0	29.97	0.91	14.3	
PT 25	119.7	-7.5	14.1	19.42	306.1	103.0
	0.1742	-7.6	141.	-43.49	-6.4	0.2166
	44.2	0.0	29.97	1.34	12.2	
PT 26	119.6	-5.0	14.1	17.71	179.1	102.0
	0.1743	-5.1	144.	-30.85	-8.8	0.2170
	44.2	0.0	29.97	1.22	9.5	
PT 27	119.4	-2.5	14.1	17.09	96.0	101.0
	0.1742	-2.5	153.	-17.54	-5.3	0.2174
	44.2	0.0	29.97	1.00	5.6	

	VKTS MTUN QPSF	ALFS,U ALFS,C PSI	RPM J THRUST BAR	DRAG/Q LIFT/Q SIDE/Q	PITCH/Q YAW/Q ROLL/Q	TEMP RHO100
PT 28	119.3 0.1742 44.2	0.0 -0.0 0.0	14.1 158. 29.97	16.77 -5.99 0.72	10.1 -3.4 4.1	100.0 0.2178
PT 29	119.4 0.1744 44.2	2.5 2.5 0.0	14.1 164. 29.97	16.74 6.67 0.36	-104.2 -1.9 3.7	100.0 0.2178
PT 30	119.2 0.1741 44.1	5.0 5.1 0.0	14.1 163. 29.97	17.42 21.03 -0.32	-230.3 -1.2 9.6	99.0 0.2182
PT 31	119.2 0.1742 44.2	7.5 7.6 0.0	14.1 167. 29.97	18.63 35.96 -1.22	-355.5 4.5 23.8	99.0 0.2182
PT 32	119.3 0.1745 44.3	10.0 10.1 0.0	14.1 167. 29.97	19.95 48.11 -1.08	-486.2 4.5 22.5	98.0 0.2186
PT 33	119.2 0.1744 44.2	0.0 -0.0 0.0	344.8 163. 29.97	16.91 -4.29 0.41	-0.7 6.4 3.5	98.0 0.2186
PT 34	118.9 0.1740 44.0	0.0 -0.0 0.0	344.4 0. 29.96	17.70 -5.10 0.82	-12.1 6.8 1.4	98.0 0.2185
PT 35	6.6 0.0097 0.1	0.0 0.0 0.0	4.3 151. 29.96	95.95 -358.87 215.43	1636.7 -2771.7 -4543.9	93.0 0.2235
PT 36	7.2 0.0105 0.2	0.0 0.0 0.0	4.3 593. 29.96	-350.61 -61.01 79.35	744.5 -1304.1 -2452.5	91.0 0.2243
PT 37	3.1 0.0120 0.2	0.0 0.0 0.0	4.3 1176. 29.96	-142.51 117.32 -4.69	-330.3 -2637.9 349.5	88.0 0.2255

	VKTS MTUN QPSF	ALFS,U ALFS,C PSI	RPM J THRUST BAR	DRAG/Q LIFT/Q SIDE/Q	PITCH/Q YAW/Q ROLL/Q	TEMP RHO100
PT 38	9.5 0.0139 0.3	0.0 0.0 0.0	4.3 1684. 29.96	-62.73 87.15 -62.78	-325.1 -3063.9 1352.7	89.0 0.2251
PT 39	12.6 0.0185 0.5	0.0 0.0 0.0	4.3 2230. 29.96	-42.97 68.88 -70.88	-501.1 -2367.2 34980.5	90.0 0.2247
PT 40	14.9 0.0213 0.7	0.0 0.0 0.0	4.3 2651. 29.96	16.36 49.66 -86.59	-474.4 -2346.2 1415.5	91.0 0.2242
PT 41	8.6 0.0127 0.2	0.0 0.0 0.0	4.3 132. 29.96	-77.88 -63.11 -8.42	807.7 314.3 256.6	91.0 0.2243
PT 42	7.7 0.0113 0.2	0.0 0.0 0.0	4.3 559. 29.96	-172.03 0.00 31.84	691.6 -67.9 -1207.3	90.0 0.2247
PT 43	8.6 0.0127 0.2	0.0 0.0 0.0	4.3 1124. 29.96	-277.53 63.11 -67.35	3157.7 -924.6 -764.4	90.0 0.2247
PT 44	9.5 0.0139 0.3	0.0 0.0 0.0	4.3 1689. 29.96	-302.25 52.29 -118.58	1279.0 -1700.5 -612.0	89.0 0.2251
PT 45	10.6 0.0156 0.4	0.0 0.0 0.0	4.3 2140. 29.96	-210.19 41.59 -172.00	789.8 -1570.9 34.8	89.0 0.2251
PT 46	14.0 0.0206 0.6	0.0 0.0 0.0	4.3 2643. 29.96	-18.97 47.54 -87.20	-183.6 -798.6 -589.5	89.0 0.2251

DATA IN THE FOLLOWING GROUP OF POINTS SATISFIED THE FOLLOWING SEQUENCE OF CONSTRAINT CODES -
1 2

	V/OR	VKTS	BAR	LIFT	LIFT,R	CLR/S,R	HP
	MAT	MTUN	TEMP	DRAG	DRAG,R	CDR/S,R	TORQ
	OMEG*R	QPSF	RHO100	SIDE	SIDE,R	CYR/S,R	J THRUST
	TIPM	ALFS,U	L/DE	PITCH	PITCH,R	CMY/S,R	CP/S
	RPM	ALFS,C	L/D,R	YAW	YAW,R	CMZ/S,R	CPD/S,R
	RPMZ	PSI	ANXL/R	ROLL	ROLL,R	CMX/S,R	
RUN 21							
PT 6	0.2489	89.3	29.78	2697.	2665.	0.025602	258.
	0.6570	0.1309	94.0	600.	137.	0.001314	4211.
	605.6	25.0	0.2200	14.	2.	0.000024	224.
	0.5261	0.0	1.75	5327.	7002.	0.021004	0.002247
	321.3	0.3	2.48	-462.	-401.	-0.000204	0.002574
	93.5	0.0	-2.9	1736.	1400.	0.000640	
PT 7	0.2504	89.4	29.78	8148.	7393.	0.071956	180.
	0.6535	0.1309	96.0	1429.	928.	0.009033	2963.
	602.8	25.0	0.2193	93.	97.	0.000948	229.
	0.5227	5.0	3.90	7373.	15624.	0.111234	0.001602
	319.8	5.8	4.66	624.	599.	0.001088	0.003864
	93.1	0.0	-7.2	-1309.	-1997.	-0.005280	
PT 8	0.2511	90.0	29.78	10389.	9603.	0.093162	263.
	0.6550	0.1314	98.0	1598.	1091.	0.010579	4310.
	604.9	25.2	0.2185	69.	74.	0.000717	229.
	0.5235	5.0	4.07	7116.	16738.	0.136574	0.002323
	320.9	6.0	4.70	264.	214.	0.000693	0.004979
	93.4	0.0	-6.5	-2897.	-3467.	-0.005045	
PT 9	0.2507	89.8	29.78	13233.	12414.	0.120793	448.
	0.6538	0.1311	99.0	1849.	1341.	0.013051	7330.
	604.5	25.0	0.2181	77.	83.	0.000806	215.
	0.5227	5.0	3.81	12109.	23190.	0.174618	0.003962
	320.7	6.2	4.19	-224.	-269.	0.000504	0.007234
	93.3	0.0	-6.2	-4619.	-5223.	-0.006396	
PT 10	0.2498	89.9	29.78	15158.	14317.	0.138755	803.
	0.6546	0.1308	102.0	1335.	1327.	0.012863	13085.
	607.3	25.0	0.2169	15.	21.	0.000208	215.
	0.5238	5.0	3.19	13927.	26860.	0.190100	0.007045
	322.2	6.4	3.38	-483.	-583.	-0.000146	0.010258
	93.8	0.0	-5.3	-5966.	-6276.	-0.004302	

	V/OR	VKTS	BAR	LIFT	LIFT,R	CLR/S,R	HP
	MAT	MTUN	TEMP	DRAG	DRAG,R	CDR/S,R	TORQ
	OMEG*R	QPSF	RHO100	SIDE	SIDE,R	CYR/S,R	J THRUST
	TIPM	ALFS,U	L/DE	PITCH	PITCH,R	CMY/S,R	CP/S
	RPM	ALFS,C	L/D,R	YAW	YAW,R	CMZ/S,R	CPO/S,R
	RPMZ	PSI	ANXL/R	ROLL	ROLL,R	CMX/S,R	
PT 11	0.2485	89.8	29.78	8746.	7655.	0.073627	103.
	0.6564	0.1306	103.0	1370.	1340.	0.012891	1673.
	610.2	24.9	0.2165	48.	60.	0.000579	220.
	0.5257	7.5	3.90	3769.	14479.	0.144598	0.000894
	323.7	8.3	4.47	448.	380.	0.000782	0.004097
	94.2	0.0	-9.9	-552.	-975.	-0.003067	
PT 12	0.2490	90.0	29.78	8756.	7661.	0.073642	101.
	0.6568	0.1309	103.0	1872.	1340.	0.012878	1630.
	610.3	25.0	0.2165	47.	59.	0.000569	217.
	0.5259	7.5	3.92	3814.	14568.	0.144594	0.000871
	323.8	8.3	4.50	455.	384.	0.000773	0.004077
	94.2	0.0	-9.9	-730.	-1148.	-0.003113	
PT 13	0.2489	90.0	29.78	10456.	9340.	0.089785	118.
	0.6568	0.1309	103.0	2124.	1590.	0.015282	1914.
	610.3	25.0	0.2165	38.	51.	0.000487	220.
	0.5259	7.5	4.10	4831.	16362.	0.173484	0.001022
	323.8	8.5	4.63	969.	789.	0.000908	0.004825
	94.2	0.0	-9.7	-900.	-1271.	-0.002818	
PT 14	0.2499	90.1	29.78	13383.	12230.	0.118578	239.
	0.6545	0.1309	104.0	2508.	1971.	0.019107	3884.
	608.3	25.0	0.2161	37.	50.	0.000489	217.
	0.5236	7.5	3.97	6189.	19300.	0.222691	0.002092
	322.7	8.8	4.32	1520.	1440.	0.001264	0.006868
	93.9	0.0	-9.2	-1963.	-2323.	-0.003399	
PT 15	0.2490	90.0	29.78	15772.	14588.	0.140575	440.
	0.6551	0.1308	104.0	2802.	2261.	0.021790	7145.
	610.2	25.0	0.2161	106.	120.	0.001157	219.
	0.5253	7.5	3.59	8352.	22844.	0.259676	0.003825
	323.7	9.0	3.78	2071.	2066.	0.002261	0.009252
	94.2	0.0	-8.8	-942.	-1617.	-0.005947	

	V/OR	VKTS	BAR	LIFT	LIFT,R	CLR/S,R	HP
	MAT	MTUN	TEMP	DRAG	DRAG,R	CDR/S,R	TORQ
	OMEG*R	QPSF	RHO100	SIDE	SIDE,R	CYR/S,R	J THRUST
	TIPM	ALFS,U	L/DE	PITCH	PITCH,R	CMY/S,R	CP/S
	RPM	ALFS,C	L/D,R	YAW	YAW,R	CMZ/S,R	CPO/S,R
	RPM%	PSI	ANXL/R	ROLL	ROLL,R	CMX/S,R	
PT 16	0.2424	90.2	29.78	8972.	7533.	0.068552	31.
	0.6715	0.1310	104.0	2317.	1751.	0.015932	496.
	627.9	25.0	0.2161	-8.	10.	0.000094	224.
	0.5405	10.0	3.69	1734.	14879.	0.166465	0.000251
	333.1	10.9	4.04	105.	7.	0.000116	0.004112
	97.0	0.0	-13.1	88.	-1.	-0.000410	
PT 17	0.2264	91.1	29.78	11800.	10301.	0.080180	33.
	0.7169	0.1323	104.0	2960.	2380.	0.018521	482.
	679.0	25.5	0.2161	188.	207.	0.001609	213.
	0.5845	10.0	3.83	7988.	22245.	0.194973	0.000208
	360.2	11.1	4.12	396.	545.	0.002150	0.004402
	104.8	0.0	-13.0	5038.	4060.	-0.005237	
PT 18	0.2497	90.1	29.78	8408.	7651.	0.074042	190.
	0.6550	0.1309	104.0	1424.	923.	0.008931	3091.
	608.8	25.0	0.2161	64.	68.	0.000662	216.
	0.5241	5.0	3.98	6119.	14638.	0.111838	0.001662
	323.0	5.8	4.75	-3.	-53.	0.000506	0.003892
	94.0	0.0	-6.9	-198.	-740.	-0.003334	
PT 19	0.3002	108.5	29.78	8115.	7154.	0.069378	142.
	0.6825	0.1576	105.0	1615.	917.	0.008895	2311.
	609.8	36.0	0.2150	41.	39.	0.000379	213.
	0.5249	5.0	3.97	2968.	13246.	0.107164	0.001245
	323.5	5.5	5.32	614.	356.	0.000497	0.003916
	94.2	0.0	-7.3	-951.	-1567.	-0.002524	
RUN 23							
PT 7	0.2992	105.0	29.96	2527.	2576.	0.024990	232.
	0.6798	0.1566	76.0	258.	215.	0.002090	3884.
	592.1	35.8	0.2281	34.	10.	0.000099	222.
	0.5232	0.0	1.60	5576.	6946.	0.024646	0.002093
	314.1	0.2	2.75	-554.	-597.	-0.000280	0.002719
	91.4	0.0	-4.8	334.	-261.	-0.000584	

	V/OP MAT CNEG*F TIPM RPM RPM%	VKTS MTUN QPSF ALFS,U ALFS,C PSI	BAR TEMP RHO100 L/DE L/D,P ANXL/P	LIFT DRAG SIDE PITCH YAW ROLL	LIFT,R DRAG,R SIDE,R PITCH,R YAW,R ROLL,P	CLR/S,P CDR/S,R CYR/S,R CMY/S,R CMZ/S,R CMX/S,P	HP TORQ J THRUST CP/S CPO/S,P
PT 8	0.3010	105.8	29.96	8499.	8478.	0.082535	440.
	0.6795	0.1572	90.0	820.	172.	0.001671	7344.
	593.2	36.1	0.2263	69.	46.	0.000450	222.
	0.5223	0.0	3.91	15181.	19897.	0.053569	0.003972
	314.7	0.6	5.55	-185.	-239.	0.000058	0.004475
	91.6	0.0	-1.2	-1969.	-2748.	-0.003504	
PT 9	0.2985	105.6	29.96	12862.	11846.	0.114356	476.
	0.6810	0.1566	83.0	1819.	1120.	0.010816	7897.
	597.3	35.8	0.2251	54.	54.	0.000517	210.
	0.5245	5.0	3.91	8766.	22478.	0.157873	0.004235
	316.9	5.8	4.57	591.	343.	0.000601	0.007463
	92.2	0.0	-5.4	-2569.	-3229.	-0.004022	
PT 10	0.2998	106.1	29.96	15031.	13984.	0.135245	753.
	0.6811	0.1571	84.0	1905.	1199.	0.011601	12476.
	597.3	36.0	0.2247	131.	131.	0.001268	211.
	0.5240	5.0	3.56	12255.	27671.	0.181423	0.006703
	316.9	6.0	3.98	479.	288.	0.001178	0.010181
	92.2	0.0	-4.9	-1216.	-2244.	-0.006828	
PT 11	0.3002	106.4	29.96	15984.	14926.	0.145052	1016.
	0.6797	0.1569	88.0	1967.	1162.	0.011295	16814.
	598.1	36.0	0.2231	290.	290.	0.002823	222.
	0.5227	5.0	3.21	12867.	29335.	0.188787	0.009078
	317.3	6.0	3.49	39.	-16.	0.002268	0.012469
	92.4	0.0	-4.5	1570.	-200.	-0.012619	
PT 12	0.3002	106.8	29.96	11077.	9601.	0.093217	119.
	0.6800	0.1570	92.0	2358.	1614.	0.015672	1956.
	600.5	36.0	0.2214	91.	101.	0.000981	223.
	0.5230	7.5	4.07	4740.	19746.	0.180742	0.001055
	318.6	8.2	4.86	654.	427.	0.001211	0.005760
	92.7	0.0	-9.5	-1452.	-2220.	-0.005507	

		V/OP	VKTS	BAR	LIFT	LIFT,R	CLR/S,R	HP
		MAT	MTUN	TEMP	DRAG	DRAG,R	CDR/S,R	TORQ
		CMFG*R	QPSF	RHO100	SIDE	SIDE,R	CYR/S,R	J THRUST
		TIPM	ALFS,U	L/DE	PITCH	PITCH,R	CMY/S,R	CP/S
		RPM	ALFS,C	L/D,R	YAW	YAW,R	CMZ/S,R	CPO/S,R
		RPM%	PSI	ANXL/R	ROLL	ROLL,R	CMX/S,R	
PT	13	0.3003	107.0	29.96	15076.	13546.	0.131272	882.
		0.6807	0.1572	93.0	2356.	1605.	0.015558	14517.
		601.7	36.1	0.2210	364.	375.	0.003635	218.
		0.5235	7.5	2.99	5691.	25339.	0.221195	0.007816
		319.2	8.5	3.16	-4106.	-4046.	0.001454	0.012488
		92.9	0.0	-6.8	3668.	1636.	-0.015090	
PT	14	0.2989	107.0	29.96	13620.	12116.	0.117088	512.
		0.6809	0.1567	96.0	2365.	1621.	0.015664	8393.
		604.1	35.8	0.2198	122.	133.	0.001282	220.
		0.5242	7.5	3.47	3961.	21804.	0.205606	0.004506
		320.5	8.4	3.81	-311.	-501.	0.001012	0.009187
		93.3	0.0	-7.6	-1857.	-2757.	-0.007114	
PT	15	0.2995	107.8	29.96	9355.	8850.	0.084788	324.
		0.6842	0.1577	97.0	1324.	654.	0.006269	5274.
		607.3	36.3	0.2194	151.	138.	0.001322	211.
		0.5265	2.5	4.06	12140.	20008.	0.093852	0.002807
		322.2	3.1	5.42	-391.	-510.	0.000538	0.004684
		93.8	0.0	-4.2	1037.	-145.	-0.005979	
PT	16	0.3562	142.6	29.96	8676.	8084.	0.078107	343.
		0.7365	0.2090	97.0	1331.	736.	0.007109	5586.
		607.3	63.0	0.2176	162.	149.	0.001436	166.
		0.5275	2.5	3.32	9050.	18717.	0.093349	0.002998
		322.2	2.8	5.32	282.	232.	0.001004	0.005815
		93.8	0.0	-5.2	1762.	714.	-0.006024	
PT	17	0.3992	143.0	29.96	11802.	11173.	0.103872	499.
		0.7316	0.2087	102.0	1861.	767.	0.007539	8166.
		604.7	62.8	0.2157	144.	132.	0.001295	133.
		0.5229	2.5	3.94	11351.	23174.	0.117563	0.004461
		320.8	2.9	5.87	-69.	-138.	0.000718	0.007471
		93.4	0.0	-3.9	-1205.	-2176.	-0.006971	

	V/OR	VKTS	BAR	LIFT	LIFT,R	CLP/S,R	HP
	MAT	MTUN	TEMP	DRAG	DRAG,R	CDR/S,R	TORQ
	OMEGA*R	QPSF	RHO100	SIDE	SIDE,R	CYR/S,R	J THRUST
	TIPM	ALFS,U	L/DE	PITCH	PITCH,R	CMY/S,R	CP/S
	RPM	ALFS,C	L/D,R	YAW	YAW,R	CMZ/S,R	CPO/S,R
	RPM*	PSI	ANXL/R	ROLL	ROLL,R	CMX/S,R	
PT 18	0.3991	142.2	29.96	10045.	9438.	0.092908	390.
	0.7312	0.2096	104.0	1821.	729.	0.007173	6380.
	605.4	62.7	0.2149	128.	115.	0.001134	133.
	0.5226	2.5	3.71	9417.	20113.	0.103684	0.003489
	321.2	2.9	5.84	107.	31.	0.000711	0.006352
	93.5	0.0	-4.4	-670.	-1562.	-0.005914	
RUN 24							
PT 6	0.4026	140.9	29.96	9201.	7796.	0.078550	294.
	0.7244	0.2079	90.0	2142.	1007.	0.010142	4919.
	590.9	62.4	0.2204	358.	358.	0.003704	175.
	0.5165	5.0	3.26	5362.	21861.	0.125837	0.002754
	313.5	5.3	4.63	125.	153.	0.003073	0.006836
	91.2	0.0	-7.4	8933.	6799.	-0.012612	
PT 7	0.3940	140.9	29.95	13076.	11632.	0.113114	360.
	0.7329	0.2071	94.0	2463.	1332.	0.012953	5898.
	603.8	61.9	0.2188	303.	314.	0.003052	173.
	0.5258	5.0	3.97	7328.	25881.	0.169388	0.003186
	320.3	5.5	5.38	55.	32.	0.002479	0.008289
	93.2	0.0	-6.5	3217.	1326.	-0.012812	
PT 8	0.3960	141.2	29.95	14223.	12773.	0.125296	458.
	0.7308	0.2073	95.0	2484.	1351.	0.013251	7542.
	601.7	62.0	0.2184	292.	303.	0.002974	174.
	0.5235	5.0	4.02	7065.	26639.	0.181223	0.004110
	319.2	5.5	5.30	242.	208.	0.002512	0.009358
	92.9	0.0	-6.0	1213.	-629.	-0.013526	
PT 9	0.4004	142.4	29.95	11426.	9129.	0.090290	101.
	0.7302	0.2088	97.0	2855.	1640.	0.016221	1673.
	600.4	62.8	0.2175	-145.	-117.	-0.001152	174.
	0.5214	7.5	3.70	-4600.	19149.	0.180383	0.000919
	318.5	7.9	4.88	1387.	888.	-0.000663	0.007414
	92.7	0.0	-10.2	-9957.	-9963.	-0.000412	

	V/OP MAT OMEG*R TIPM RPM RPM%	VKTS MTUN QPSF ALFS,U ALFS,C PSI	BAR TEMP RHO100 L/DE L/D,R ANXL/R	LIFT DRAG SIDE PITCH YAW ROLL	LIFT,R DRAG,R SIDE,R PITCH,R YAW,R ROLL,R	CLR/S,R CDR/S,R CYR/S,R CMY/S,R CMZ/S,R CMX/S,R	HP TORQ J THRUST CP/S CPO/S,R
PT 10	0.3963	142.5	29.95	11645.	9341.	0.090341	101.
	0.7363	0.2090	97.0	2887.	1670.	0.016148	1645.
	607.1	63.0	0.2175	-150.	-121.	-0.001174	172.
	0.5273	7.5	3.74	-4173.	19720.	0.180147	0.000884
	322.1	7.9	4.92	1372.	867.	-0.000707	0.007283
	93.8	0.0	-10.1	-9043.	-9026.	0.000309	
PT 11	0.4489	160.6	29.95	9185.	8506.	0.084656	392.
	0.7559	0.2342	104.0	2118.	766.	0.007622	6422.
	603.8	78.5	0.2137	382.	369.	0.003669	119.
	0.5217	2.5	3.15	11501.	22764.	0.102459	0.003551
	320.3	2.8	5.45	-697.	-536.	0.001950	0.006973
	93.2	0.0	-5.1	122.	-1927.	-0.017441	
PT 12	0.4471	160.6	29.95	9254.	8575.	0.084655	405.
	0.7580	0.2342	104.0	2112.	761.	0.007512	6606.
	606.2	78.5	0.2137	415.	402.	0.003965	119.
	0.5238	2.5	3.15	11578.	22914.	0.101892	0.003623
	321.6	2.8	5.42	-587.	-405.	0.002206	0.006982
	93.6	0.0	-5.1	364.	-1842.	-0.018708	
RUN 25 PT 5	0.2594	105.3	29.97	12595.	11099.	0.107211	180.
	0.6812	0.1570	77.0	2474.	1728.	0.016695	3006.
	593.8	36.0	0.2277	234.	244.	0.002361	232.
	0.5242	7.5	4.15	3808.	20018.	0.199839	0.001613
	315.0	8.3	4.86	205.	130.	0.002429	0.006611
	91.7	0.0	-8.9	1542.	113.	-0.010313	
PT 6	0.3017	106.2	29.97	8337.	6879.	0.066537	71.
	0.6820	0.1581	78.0	2055.	1306.	0.012629	1177.
	593.9	36.5	0.2272	-78.	-69.	-0.000664	229.
	0.5239	7.5	3.67	5211.	18660.	0.138519	0.000632
	315.1	8.0	4.52	514.	94.	-0.000612	0.004443
	91.7	0.0	-10.7	-226.	-236.	0.002789	

	V/OR	VKTS	BAR	LIFT	LIFT,R	CLR/S,R	HP
	MAT	MTUN	TEMP	DRAG	DRAG,R	CDR/S,R	TORQ
	CMEG*R	QPSF	RHO100	SIDE	SIDE,R	CYR/S,R	J THRUST
	TIPM	ALFS,U	L/DE	PITCH	PITCH,R	CMY/S,R	CP/S
	RPM	ALFS,C	L/D,R	YAW	YAW,R	CMZ/S,R	CPO/S,R
	RPMC	PSI	ANXL/R	ROLL	ROLL,R	CMX/S,R	
PT 7	0.2996	104.7	29.97	12252.	10778.	0.105815	248.
	0.6757	0.1558	79.0	2385.	1650.	0.016198	4154.
	590.0	35.5	0.2269	96.	106.	0.001043	238.
	0.5190	7.5	3.88	5508.	21544.	0.197010	0.002266
	313.0	8.3	4.45	2348.	2141.	0.002210	0.007119
	91.1	0.0	-8.7	-132.	-900.	-0.005074	
PT 8	0.2988	104.8	29.97	13356.	11869.	0.116004	208.
	0.6763	0.1557	80.0	2557.	1821.	0.017798	3473.
	591.9	35.4	0.2265	117.	128.	0.001247	239.
	0.5211	7.5	4.17	2929.	19420.	0.213838	0.001886
	314.0	8.4	4.81	2790.	2606.	0.002661	0.007203
	91.4	0.0	-8.7	760.	-101.	-0.005532	
PT 9	0.2546	104.3	29.97	15880.	14370.	0.137698	187.
	0.6813	0.1550	80.0	3951.	2317.	0.022200	3105.
	597.7	35.1	0.2265	26.	37.	0.000356	239.
	0.5262	7.5	4.37	1664.	18657.	0.256517	0.001653
	317.1	8.6	4.95	3530.	3258.	0.002090	0.008193
	92.3	0.0	-9.2	-1361.	-2281.	-0.002780	
RUN 28							
PT 6	0.2496	88.3	29.92	8936.	8500.	0.081592	338.
	0.6561	0.1311	80.0	1008.	527.	0.005057	5614.
	596.8	25.2	0.2268	-156.	-160.	-0.001531	221.
	0.5251	2.5	3.96	10653.	17694.	0.084634	0.002994
	316.6	3.3	4.79	2525.	2372.	0.000327	0.004256
	92.2	0.0	-3.5	905.	1367.	0.007564	
PT 7	0.2514	88.6	29.92	11689.	11219.	0.108912	488.
	0.6534	0.1313	83.0	1136.	652.	0.006326	8123.
	595.1	25.2	0.2256	-141.	-144.	-0.001396	219.
	0.5221	2.5	3.99	10922.	19383.	0.108714	0.004381
	315.7	3.6	4.59	3609.	3458.	0.001010	0.005972
	91.9	0.0	-3.3	711.	1103.	0.006826	

	V/CP	VKTS	BAR	LIFT	LIFT,R	CLR/S,R	HP
	MAT	MTUN	TEMP	DRAG	DRAG,R	CDR/S,P	TORQ
	CMEO*R	QPSF	RHO100	SIDE	SIDE,P	CYR/S,R	J THRUST
	TIPM	ALFS,U	L/DE	PITCH	PITCH,R	CMY/S,R	CP/S
	RPM	ALFS,C	L/D,P	YAW	YAW,R	CMZ/S,P	CPO/S,R
	RPMX	PSI	ANXL/R	ROLL	ROLL,R	CMX/S,R	
PT 9	0.2505	88.8	29.92	16010.	15486.	0.149922	1042.
	0.6538	0.1309	87.0	1456.	970.	0.009389	17253.
	598.1	25.1	0.2239	-31.	-32.	-0.000314	231.
	0.5228	2.5	3.03	23041.	33134.	0.156479	0.009279
	317.3	4.0	3.23	7275.	7186.	0.003673	0.011631
	92.4	0.0	-3.6	-2712.	-2838.	-0.000126	
RUN 29							
PT 5	0.2497	88.6	29.93	10495.	9708.	0.093200	551.
	0.6560	0.1311	34.0	1335.	888.	0.008521	9116.
	598.3	25.2	0.2252	-420.	-415.	-0.003985	196.
	0.5249	5.0	3.07	6589.	17258.	0.126589	0.004862
	317.7	6.0	3.33	6401.	5933.	-0.000049	0.006989
	92.5	0.0	-5.2	-6376.	-4651.	0.015183	
PT 6	0.2490	88.4	29.93	11494.	10362.	0.099471	530.
	0.6557	0.1307	85.0	1025.	1388.	0.013326	8747.
	599.4	25.0	0.2248	-348.	-335.	-0.003217	199.
	0.5249	7.5	2.97	3481.	17155.	0.173966	0.004665
	318.0	8.6	3.10	7315.	6827.	0.000427	0.007984
	92.6	0.0	-7.6	-2084.	-657.	0.013782	
PT 7	0.2489	88.7	29.93	12824.	11329.	0.108137	511.
	0.6575	0.1311	86.0	2666.	2093.	0.019974	8407.
	601.7	25.2	0.2244	-420.	-401.	-0.003828	197.
	0.5264	10.0	2.82	1692.	18538.	0.235502	0.004458
	319.2	11.2	2.85	8880.	9270.	-0.000168	0.009430
	92.9	0.0	-10.5	-4038.	-2218.	0.015457	
PT 9	0.2504	88.2	29.94	14655.	13815.	0.133203	562.
	0.6549	0.1312	79.0	1953.	1440.	0.013886	9357.
	594.7	25.2	0.2274	-227.	-221.	-0.002130	249.
	0.5237	5.0	3.64	8130.	20007.	0.186945	0.005012
	315.5	6.4	3.93	6258.	5949.	0.001469	0.008490
	91.8	0.0	-6.0	-2715.	-1889.	0.008428	

	V/OR MAT OMEG*R TIPM RPM RPMC	VKTS MTUN QPSF ALFS,U ALFS,C PSI	BAP TEMP RHO100 L/DE L/D,R ANXL/F	LIFT DRAG SIDE PITCH YAW ROLL	LIFT,R DRAG,R SIDE,R PITCH,R YAW,R ROLL,R	CLR/S,R CDR/S,R CYR/S,R CMY/S,R CMZ/S,R CMX/S,R	HP TORO J THRUST CP/S CPO/S,R
PT 9	0.2490	88.1	29.94	12889.	12074.	0.115752	520.
	0.6560	0.1308	80.0	1722.	1214.	0.011635	8790.
	557.0	25.1	0.2270	-333.	-327.	-0.003138	248.
	0.5252	5.0	3.50	7142.	18505.	0.160857	0.004681
	316.7	6.2	3.80	6640.	6244.	0.000795	0.007578
	92.2	0.0	-5.7	-1191.	128.	0.013976	
PT 10	0.2480	87.9	29.94	14129.	12966.	0.123751	493.
	0.6569	0.1305	80.0	2403.	1865.	0.017798	8166.
	598.3	25.0	0.2270	-394.	-380.	-0.003630	251.
	0.5264	7.5	3.34	1695.	16154.	0.219600	0.004330
	317.4	8.8	3.51	7413.	6878.	0.000019	0.008743
	92.4	0.0	-8.2	-2069.	-422.	0.015726	
PT 11	0.2507	88.4	29.94	17909.	16692.	0.161634	599.
	0.6536	0.1310	82.0	3163.	2616.	0.025334	9966.
	595.1	25.2	0.2261	-11.	3.	0.000034	252.
	0.5226	7.5	3.33	8250.	23599.	0.298585	0.005362
	315.7	9.2	3.46	7033.	6903.	0.003747	0.011714
	91.9	0.0	-8.9	-504.	-628.	-0.000485	
RUN 30							
PT 6	0.2508	88.0	29.99	14071.	13237.	0.127927	525.
	0.6538	0.1311	76.0	1899.	1387.	0.013401	8790.
	591.9	25.2	0.2290	-323.	-317.	-0.003064	280.
	0.5227	5.0	3.66	7930.	19615.	0.180103	0.004719
	314.0	6.3	3.97	6350.	5960.	0.000728	0.008081
	91.4	0.0	-6.0	-1703.	-428.	0.013353	
PT 7	0.2501	88.2	29.99	11588.	10786.	0.103501	509.
	0.6557	0.1312	78.0	1571.	1061.	0.010180	8464.
	595.1	25.3	0.2282	-478.	-473.	-0.004537	280.
	0.5245	5.0	3.36	5855.	16750.	0.142845	0.004512
	315.7	6.1	3.67	6362.	5842.	-0.000545	0.007058
	91.9	0.0	-5.6	-550.	1449.	0.020385	

PT							
	V/OR	VKTS	BAR	LIFT	LIFT,R	CLR/S,R	HP
	MAT	MTUN	TEMP	DRAG	DRAG,R	CDR/S,R	TORQ
	OMEG*R	QPSF	RHO100	SIDE	SIDE,R	CYR/S,R	J THRUST
	TIPM	ALFS,U	L/DE	PITCH	PITCH,R	CMY/S,R	CP/S
	RPM	ALFS,C	L/D,R	YAW	YAW,R	CMZ/S,R	CPO/S,R
	RPM%	PSI	ANXL/R	ROLL	ROLL,R	CMX/S,R	
PT 8	0.4062	141.9	30.00	11685.	11050.	0.110322	486.
	0.7294	0.2107	83.0	1788.	672.	0.006710	8166.
	589.6	64.1	0.2234	-316.	-329.	-0.003282	312.
	0.5187	2.5	4.02	11062.	23340.	0.113987	0.004529
	312.8	2.9	6.18	5537.	5221.	0.000866	0.007255
	91.0	0.0	-3.5	-3913.	-2698.	0.013152	
PT 9	0.4027	142.1	30.00	12095.	11456.	0.112681	604.
	0.7330	0.2104	86.0	1778.	665.	0.006538	10037.
	595.6	63.9	0.2222	-453.	-471.	-0.004628	310.
	0.5226	2.5	3.82	8604.	21208.	0.113217	0.005485
	316.0	2.9	5.59	6396.	5937.	0.000410	0.008118
	92.0	0.0	-3.3	-4701.	-2817.	0.019118	

SECTION B

Tabulated Control and Loads Data

[illegible]	THETA	[illegible] MN	[illegible] MN	URRPL MN	URCB OS	LRCB OS	URRPL OS	URSB MN	LVF VTAC
PT	AI	URN1 MN	[illegible] MN	URYPL MN	URN1 OS	LRN1 OS	URYPL OS	URSB OS	HST VTAC
MAT	[illegible]	URN2 MN	[illegible] MN	URRPL MN	URN2 OS	LRN2 OS	URBPL OS	GP VTAC	#1J VTAC
ALPH	THETAD	URN3 MN	[illegible] MN	LRRPL MN	URN3 OS	LRN3 OS	LRRPL OS	GP LTAC	#2J VTAC
V/[illegible]	[illegible]	URN6 MN	[illegible] MN	LRYPL MN	URN6 OS	LRN6 OS	LRYPL OS	GP LNAC	LAS LTAC
VKTS	[illegible]	#1C MN	#2C MN	LRGPL MN	#1C OS	#2C OS	LRGPL OS		
21	[illegible]	[illegible]	-4512.	-137.	326.	1197.	264.	2123.	1.170
[illegible]	-1.72	[illegible]	-11268.	-72.	1650.	1790.	232.	1477.	0.222
0.6570	1.14	-19642.	-7645.	-32.	2032.	1205.	268.	0.261	0.290
0.2	[illegible]	-2355.	-4933.	-164.	946.	928.	160.	0.235	0.312
[illegible]	[illegible]	-417.	-344.	-215.	2846.	562.	168.	0.286	0.299
[illegible]	[illegible]	30.	[illegible]	-109.	14.	15.	160.		
[illegible]	[illegible]	[illegible]	[illegible]	-195.	3711.	1976.	335.	2770.	1.435
7	[illegible]	[illegible]	[illegible]	[illegible]	1914.	2541.	284.	3365.	0.423
0.6525	[illegible]	-656.	[illegible]	-144.	2.	1058.	344.	0.443	0.299
[illegible]	[illegible]	[illegible]	[illegible]	-103.	397.	966.	204.	0.282	0.463
[illegible]	[illegible]	[illegible]	-477.	-145.	2270.	328.	215.	0.546	0.226
[illegible]	[illegible]	42.	34.	-48.	15.	14.	237.		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1025.	2670.	398.	3124.	1.621
[illegible]	[illegible]	-1977.	[illegible]	[illegible]	3256.	1362.	350.	2829.	0.373
[illegible]	[illegible]	-457.	[illegible]	[illegible]	2.	1201.	413.	0.450	0.319
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1045.	791.	228.	0.314	0.482
[illegible]	[illegible]	[illegible]	-235.	-115.	1644.	453.	226.	0.554	0.195
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	29.	28.	218.		
[illegible]	[illegible]	[illegible]	[illegible]	-190.	263.	3775.	540.	3613.	1.928
[illegible]	[illegible]	[illegible]	[illegible]	-174.	5904.	3491.	437.	4671.	0.666
[illegible]	-1.24	-657.	[illegible]	-105.	2.	2042.	513.	0.662	0.487
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2061.	1002.	258.	0.464	0.569
[illegible]	[illegible]	[illegible]	-56.	-44.	2205.	449.	275.	1.099	0.304
[illegible]	[illegible]	[illegible]	[illegible]	56.	29.	26.	297.		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1382.	5228.	605.	4320.	2.756
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	5334.	5141.	1201.	4917.	0.630
[illegible]	[illegible]	[illegible]	3427.	-270.	4.	3496.	657.	0.776	0.945
[illegible]	-0.41	[illegible]	[illegible]	[illegible]	2195.	2150.	489.	0.454	0.657
[illegible]	[illegible]	[illegible]	[illegible]	-2.	2276.	767.	498.	0.810	0.404
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	93.	90.	442.		

[illegible]	THETA[illegible]	[illegible] MN	L[illegible] MN	[illegible] MN	[illegible] OS	LNCD OS	URRPL OS	URSB MN	LVF VTAC
PT	A[illegible]	[illegible] MN	L[illegible] MN	[illegible]YPL MN	JR[illegible] OS	LNN1 OS	URYPL OS	URSB OS	HST VTAC
[illegible]T	[illegible]	[illegible] MN	L[illegible]2 MN	L[illegible]PL MN	JRN2 OS	LNN2 OS	LPBPL OS	GB VTAC	#1J VTAC
[illegible]	THETA[illegible]	[illegible]N3 MN	L[illegible]3 MN	L[illegible]PL MN	JRN3 OS	LNN3 OS	LPRPL OS	GB LTAC	#2J VTAC
V/[illegible]	[illegible]	[illegible] MN	L[illegible] MN	L[illegible]YPL MN	JRN4 OS	LNN6 OS	LRYPL OS	GB LNAC	LAS LTAC
VKTS	[illegible]	[illegible] MN	#[illegible] MN	L[illegible]PL MN	#[illegible] OS	#LW OS	LPGPL OS		
[illegible]	[illegible]	[illegible]	[illegible]	-297.	4770.	1990.	259.	3261.	1.862
[illegible]	[illegible]	[illegible]	[illegible]	-423.	1497.	1045.	520.	2475.	0.508
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	3.	1158.	421.	0.373	0.325
[illegible]	0.75	[illegible]	-1777.	-154.	710.	918.	200.	0.252	0.275
[illegible]	[illegible]	[illegible]	-575.	-161.	2174.	415.	203.	0.501	0.244
[illegible]	[illegible]	[illegible]	[illegible]	-37.	13.	15.	218.		
[illegible]	7.65	[illegible]	[illegible]	-390.	17977.	1915.	354.	3276.	1.860
[illegible]	[illegible]	[illegible]	-4766.	-423.	1549.	1922.	584.	2513.	0.515
[illegible]	[illegible]	-457.	[illegible]	-509.	2.	1174.	413.	0.365	0.333
[illegible]	[illegible]	[illegible]	-1737.	-153.	905.	682.	202.	0.209	0.315
0.2400	-3.42	[illegible]	-574.	-159.	3045.	426.	201.	0.496	0.257
[illegible]	3.47	[illegible]	63.	-37.	13.	15.	216.		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	15594.	2210.	444.	3568.	1.686
[illegible]	-3.37	-857.	-3037.	-304.	1917.	1459.	722.	2717.	0.611
[illegible]	0.22	-455.	-1602.	-572.	2.	841.	472.	0.421	0.279
3.5	0.70	-347.	-336.	[illegible]	516.	432.	216.	0.263	0.379
[illegible]	-0.36	1350.	-460.	-134.	2382.	375.	217.	0.621	0.226
[illegible]	[illegible]	47.	61.	-14.	10.	10.	235.		
[illegible]	11.46	[illegible]	-5737.	[illegible]	310.	5058.	537.	4114.	1.799
[illegible]	-4.45	[illegible]	[illegible]	-256.	3577.	3565.	771.	2592.	0.522
[illegible]	[illegible]	-456.	[illegible]	[illegible]	2.	2169.	586.	0.605	0.356
[illegible]	[illegible]	1134.	637.	[illegible]	[illegible]	1114.	271.	0.272	0.406
[illegible]	[illegible]	2466.	[illegible]	[illegible]	2660.	570.	276.	0.921	0.219
[illegible]	[illegible]	[illegible]	110.	32.	[illegible]	21.	294.		
[illegible]	[illegible]	[illegible]	-4067.	-73.	14793.	3724.	594.	4450.	1.753
[illegible]	[illegible]	[illegible]	[illegible]	-457.	[illegible]	5721.	3002.	2681.	0.798
[illegible]	[illegible]	-455.	[illegible]	-456.	1.	5632.	632.	0.711	0.420
[illegible]	[illegible]	[illegible]	1293.	-34.	2394.	1993.	317.	0.299	0.404
[illegible]	[illegible]	[illegible]	[illegible]	-37.	2503.	352.	349.	1.244	0.258
[illegible]	[illegible]	[illegible]	[illegible]	49.	13.	14.	366.		

RUN	THETA	URC3 MN	LRC3 MN	URRPL MN	URC3 OS	LRC3 OS	URRPL OS	URSB MN	LVF VTAC
PT	A1	URN1 MN	LRN1 MN	URYPL MN	URN1 OS	LRN1 OS	URYPL OS	URSB OS	HST VTAC
MAT	B1	UPN2 MN	LRN2 MN	URBPL MN	UPN2 OS	LRN2 OS	URBPL OS	GB VTAC	#1J VTAC
ALPH	THETAP	UPN3 MN	LRN3 MN	LRRPL MN	URN3 OS	LRN3 OS	LRRPL OS	GB LTAC	#2J VTAC
V/CK	A1P	UPN6 MN	LRN6 MN	LRYPL MN	UPN6 OS	LRN6 OS	LRYPL OS	GB LNAC	LAS LTAC
VKTS	B1P	#1C MN	#2C MN	LRGPL MN	#1Q OS	#2Q OS	LRGPL OS		
21	6.31	23691.	-5609.	84.	5359.	1579.	424.	3506.	1.276
16	-2.79	-1697.	-6936.	302.	1845.	2079.	481.	3227.	0.500
0.6715	0.96	-657.	-4374.	-477.	3.	1339.	508.	0.435	0.500
10.3	1.72	-785.	-2321.	-187.	1176.	822.	244.	0.345	0.420
0.2424	-0.42	932.	-717.	-194.	3737.	397.	258.	0.637	0.305
90.2	0.65	18.	6.	-53.	13.	30.	222.		
21	7.42	49336.	-4679.	82.	1836.	2255.	509.	3913.	1.730
17	-2.63	-2054.	-4522.	314.	2690.	4640.	627.	6972.	0.768
0.7160	1.02	-656.	-2576.	-470.	26.	2698.	574.	0.737	0.590
11.1	0.74	-992.	-1539.	-175.	1566.	1621.	254.	0.236	0.517
0.2264	-0.46	702.	-555.	-181.	3913.	375.	261.	0.878	0.311
91.1	0.62	18.	6.	-44.	171.	169.	251.		
21	0.56	-1941.	-4960.	176.	13907.	1815.	369.	3575.	1.647
19	-2.05	-2469.	-5009.	298.	1438.	1341.	430.	2269.	0.440
0.6550	0.31	-457.	-2681.	-416.	2.	783.	425.	0.373	0.371
5.3	0.72	-1114.	-1096.	-132.	526.	422.	195.	0.257	0.282
0.2407	-0.22	654.	-581.	-136.	2646.	332.	209.	0.415	0.256
80.1	2.32	70.	92.	-2.	11.	13.	200.		
21	7.64	22391.	-5046.	177.	4842.	1602.	453.	3568.	1.662
16	-2.07	-2074.	-6407.	272.	2208.	2332.	441.	1908.	0.406
0.6325	0.43	-654.	-2323.	-410.	1.	1376.	421.	0.371	0.433
5.7	0.69	-1432.	-2135.	-144.	1346.	609.	226.	0.405	0.360
0.2302	-0.25	365.	-627.	-153.	2616.	340.	240.	0.504	0.315
108.5	3.55	40.	41.	-12.	10.	9.	218.		
22	6.91	[illegible]	-5209.	-153.	0.	620.	256.	1927.	1.613
7	-1.60	-4122.	-10793.	-157.	1412.	1992.	299.	2213.	0.330
0.6704	1.16	-2461.	-7252.	-111.	1116.	1266.	258.	0.278	0.350
9.2	1.34	-2142.	-4345.	-240.	843.	841.	181.	0.320	0.330
0.2927	-1.29	-2112.	-154.	-253.	2771.	571.	196.	0.197	0.301
105.0	1.32	[illegible]	30.	-173.	8.	8.	176.		

RUN DT MAT ALPH V/CP VKTS	THETA AT CL THETA2 [illegible] [illegible]	URCB MN UPN1 MN UPN2 MN UPN3 MN UPN4 MN #1J MN	LRCB MN LRN1 MN LRN2 MN LRN3 MN LRN4 MN #2J MN	URRPL MN URYPL MN URBPL MN LRRPL MN LRYPL MN LRGPL MN	URCB CS UPN1 CS UPN2 CS UPN3 CS UPN4 CS #1J CS	LRCB CS LRN1 CS LRN2 CS LRN3 CS LRN4 CS #2J CS	URRPL CS URYPL CS URBPL CS LRRPL CS LRYPL CS LRGPL CS	URSB MN URSB CS GB VTAC GB LTAC GB LNAC	LVF VTAC FST VTAC #1J VTAC #2J VTAC LAS LTAC
23	12.74	-23917.	-2224.	-142.	26592.	2734.	338.	4091.	2.910
9	-3.21	-1537.	-2433.	-112.	2777.	2326.	411.	3856.	0.383
0.6795	-0.22	327.	-1246.	-96.	1537.	1346.	382.	0.493	0.430
3.6	-1.36	-527.	-668.	-147.	881.	701.	218.	0.517	0.608
0.2010	-0.32	-1132.	-271.	-153.	2300.	582.	200.	0.618	0.414
105.3	6.01	[illegible]	195.	-73.	25.	21.	230.		
23	14.01	-22715.	-4437.	-109.	26147.	5215.	473.	4815.	1.855
9	-4.23	1415.	1260.	-63.	3909.	3411.	558.	3571.	0.593
0.6810	-0.45	2003.	1422.	-70.	2416.	2185.	535.	0.772	0.613
5.8	-0.52	320.	1153.	-90.	1445.	1334.	310.	0.632	0.722
0.2935	-0.41	-65.	-125.	-33.	4099.	603.	297.	0.788	0.534
105.6	4.04	201.	135.	-8.	15.	10.	310.		
23	15.83	-13360.	-4448.	-46.	23800.	6317.	667.	5279.	3.407
10	-5.53	2757.	2202.	19.	6622.	5599.	752.	4724.	0.842
0.6311	-1.71	4522.	2312.	-12.	4245.	5509.	654.	0.895	0.816
6.0	-0.81	2042.	2424.	5.	2515.	2202.	535.	0.851	0.897
0.2958	-1.21	751.	26.	3.	3571.	758.	463.	0.870	0.571
106.1	8.62	294.	226.	96.	28.	28.	467.		
23	16.34	-13521.	-4139.	-149.	22962.	7640.	899.	5775.	3.940
11	-7.37	4525.	5557.	12.	8031.	7250.	851.	3609.	1.048
0.6737	-1.61	5112.	4522.	-65.	5161.	4836.	781.	1.020	0.934
6.0	-1.67	2487.	3236.	92.	3129.	5110.	554.	1.194	1.099
0.3002	1.37	1067.	141.	113.	4129.	726.	663.	1.486	0.706
106.4	9.62	425.	426.	196.	56.	61.	610.		
23	11.01	-24764.	-5323.	-487.	28344.	4504.	488.	5000.	2.502
12	-3.21	-1851.	-257.	-251.	2360.	3101.	486.	4310.	0.800
0.6390	-1.24	630.	427.	-412.	1318.	2339.	529.	0.795	0.556
8.2	-1.69	-703.	404.	-119.	896.	1878.	305.	0.620	0.612
0.3002	-1.31	-1676.	-743.	-72.	3973.	778.	314.	1.052	0.447
106.8	6.24	25.	59.	31.	18.	14.	284.		

RUN PT MAT ALPH V/CR VKTS	THETA A1 B1 THETAP A1P B1P	URCB MN URN1 MN URN2 MN URN3 MN URN6 MN #1Q MN	LRCB MN LRN1 MN LRN2 MN LRN3 MN LRN6 MN #2Q MN	URRPL MN URYPL MN URBPL MN LRRPL MN LRYPL MN LRGPL MN	URCB OS URN1 OS URN2 OS URN3 OS URN6 OS #1Q OS	LRCB OS LRN1 OS LRN2 OS LRN3 OS LRN6 OS #2Q OS	URRPL OS URYPL OS URBPL OS LRRPL OS LRYPL OS LRGPL OS	URSB MN URSB OS GB VTAC GB LTAC GB LNAC	LVF VTAC HST VTAC #1J VTAC #2J VTAC LAS LTAC
23	15.06	-27698.	-3816.	-408.	29289.	10523.	575.	6002.	3.290
13	-4.82	1751.	5436.	-152.	5957.	7004.	669.	5571.	0.963
0.6807	-1.10	3739.	4492.	-368.	4060.	4665.	614.	1.010	0.949
3.5	-1.52	1144.	3139.	179.	2904.	3277.	825.	1.265	0.936
0.3002	-0.77	-13.	38.	244.	5684.	878.	796.	0.804	0.792
107.0	10.27	358.	355.	313.	38.	38.	727.		
23	12.23	-19815.	-4732.	-459.	27880.	7255.	580.	5973.	2.378
14	-5.05	1534.	1857.	-166.	3398.	4428.	669.	3345.	1.035
0.6809	-1.02	2274.	2005.	-471.	1837.	3097.	495.	0.953	0.518
3.4	-0.27	1078.	1467.	-20.	1401.	2259.	480.	0.670	0.626
0.2999	0.03	-230.	-122.	58.	5465.	1045.	511.	0.972	0.536
107.0	8.80	176.	[illegible]	126.	27.	33.	406.		
23	11.07	-44197.	-4365.	-592.	18599.	2484.	447.	5547.	2.114
15	-2.91	-2224.	-1934.	-277.	1382.	1949.	420.	4022.	0.415
0.6347	-0.17	491.	-641.	-427.	1272.	1057.	426.	0.583	0.410
3.1	0.10	-742.	-310.	-154.	940.	830.	224.	0.599	0.613
0.2995	-0.12	-1442.	-216.	-73.	3399.	594.	232.	0.511	0.474
107.3	5.92	107.	155.	26.	34.	40.	228.		
23	11.54	[illegible]	-4262.	-605.	41.	3634.	387.	5620.	3.512
16	-3.16	[illegible]	-2673.	-315.	4284.	4522.	445.	3941.	0.778
0.7245	-0.51	[illegible]	-1171.	-672.	7640.	2658.	406.	0.630	0.584
2.9	-0.27	-1148.	-674.	-131.	1878.	1852.	234.	0.984	0.684
0.3262	[illegible]	-1361.	-387.	-92.	5307.	1057.	250.	0.643	0.764
142.	[illegible]	92.	142.	-13.	16.	23.	281.		
23	[illegible]	[illegible]	[illegible]	-400.	24479.	4795.	408.	6135.	3.928
17	-4.5	-7.	492.	-287.	7338.	6845.	523.	4809.	0.607
0.7216	[illegible]	2047.	1242.	-666.	4700.	4495.	561.	0.632	0.613
2.6	-3.1	359.	[illegible]	-117.	2454.	2756.	308.	0.845	0.574
0.3022	[illegible]	-735.	-166.	-15.	4526.	902.	323.	0.552	0.705
142.	[illegible]	[illegible]	226.	60.	26.	37.	332.		

RUN PT MAT ALPH V/CP VKTS	THETA A1 A2 THETA2 A3 A1P	URCB MN URN1 MN URN2 MN URN3 MN URN4 MN #12 MN	LRCB MN LRN1 MN LRN2 MN LRN3 MN LRN4 MN #22 MN	URRPL MN URYPL MN URBPL MN LRRPL MN LRYPL MN LRGPL MN	URCB CS URN1 CS URN2 CS URN3 CS URN6 CS #10 CS	LRCB OS LRN1 OS LRN2 OS LRN3 OS LRN6 OS #24 OS	URRPL OS URYPL OS UFBPL OS LRRPL OS LRYPL OS LRGPL OS	URSB MN URSB CS GB VTAC GB LTAC GB LNAC	LVF VTAC FST VTAC #1J VTAC #2J VTAC LAS LTAC
22	12.73	-47223.	-5104.	-632.	20537.	4209.	389.	6031.	3.664
18	-2.53	-1571.	-1215.	-311.	5720.	5081.	516.	4767.	0.710
0.7212	-1.63	175.	-167.	-707.	2615.	3198.	456.	0.728	0.629
2.9	-0.14	-222.	22.	-153.	2183.	1900.	264.	0.956	0.574
0.3921	-0.34	-1329.	-290.	-50.	5140.	1010.	261.	0.567	0.727
142.2	2.45	132.	147.	37.	19.	25.	277.		
24	11.45	-4271.	-4513.	-304.	3335.	6450.	448.	1482.	3.863
7	-3.30	-4575.	-406.	-171.	6151.	6047.	462.	6763.	0.932
0.7244	-1.25	-1374.	47.	-157.	4425.	4194.	451.	0.756	0.765
5.3	-1.74	-2306.	131.	-46.	3198.	2900.	404.	1.229	0.616
0.4376	-0.41	-2474.	-311.	-71.	7607.	1155.	364.	0.999	0.903
140.9	3.43	79.	122.	5.	34.	59.	397.		
24	13.15	-7132.	-4999.	-305.	14162.	4938.	411.	2184.	4.115
7	-4.52	212.	1587.	-124.	6916.	8994.	500.	5850.	0.503
0.7326	-1.21	2175.	1464.	-169.	4293.	5996.	507.	0.641	0.573
5.5	-0.97	251.	1175.	-66.	2477.	3745.	346.	0.951	0.631
0.3340	0.96	-236.	-130.	-71.	4440.	923.	350.	0.712	0.722
140.0	9.71	175.	142.	-2.	41.	35.	376.		
24	14.17	-7747.	-4664.	-335.	16135.	5725.	454.	2405.	4.553
9	-5.13	1451.	2973.	-137.	9048.	6025.	548.	4901.	0.632
0.7308	-1.05	2271.	2419.	-207.	5766.	5730.	525.	0.758	0.536
5.5	-0.92	928.	1323.	-9.	3421.	3598.	369.	0.912	0.621
0.3960	0.12	-437.	-123.	-14.	4493.	815.	392.	0.742	0.673
141.2	3.27	124.	213.	63.	31.	36.	421.		
24	9.35	-9522.	-5069.	-422.	10799.	4680.	603.	2022.	4.519
9	-2.61	-1031.	-1927.	-163.	6653.	7599.	715.	5789.	0.500
0.7302	-2.37	1125.	-1009.	-300.	4076.	5433.	635.	0.867	0.630
7.0	-0.72	-468.	-512.	-133.	2407.	3939.	283.	1.078	0.850
0.4004	1.21	-1621.	-405.	-138.	3300.	1220.	333.	0.860	0.661
142.4	7.40	2.	19.	-52.	12.	17.	350.		

RUN	THETA	URCB MN	LRCB MN	URRPL MN	URCB OS	LRCB OS	URRPL OS	URSB MN	LVF VTAC
PT	A1	URN1 MN	LRN1 MN	URYPL MN	URN1 OS	LRN1 OS	URYPL OS	URSB OS	FST VTAC
MAT	B1	URN2 MN	LRN2 MN	URBPL MN	URN2 OS	LRN2 OS	URBPL OS	GB VTAC	#1J VTAC
ALPH	THETA2	URN3 MN	LRN3 MN	LRRPL MN	URN3 OS	LRN3 OS	LRRPL OS	GB LTAC	#2J VTAC
V/CR	A12	URN6 MN	LRN6 MN	LRYPL MN	URN6 OS	LRN6 OS	LRYPL OS	GB LNAC	LAS LTAC
VKTS	B12	#1C MN	#2C MN	LRGPL MN	#1Q OS	#2Q OS	LRGPL OS		
24	9.87	-10155.	-5153.	-416.	15292.	4333.	601.	2031.	4.544
10	-4.10	-1021.	-1909.	-162.	6415.	7532.	714.	5525.	0.510
0.7763	-2.01	1227.	-1024.	-307.	3886.	5485.	636.	0.809	0.576
7.9	-0.77	-456.	-517.	-134.	2270.	3987.	268.	1.116	0.809
0.3963	1.35	-1593.	-408.	-133.	3336.	1224.	328.	0.891	0.729
142.5	7.75	9.	25.	-50.	8.	15.	332.		
24	12.03	-31322.	-4049.	-564.	27581.	5062.	535.	2424.	5.772
11	-3.97	-49393.	56.	-279.	1481.	8063.	635.	5412.	0.887
0.7556	-2.93	-1535.	465.	-530.	3747.	5277.	680.	0.670	0.618
2.9	-2.83	-2234.	504.	-90.	2230.	3275.	782.	0.991	0.685
1.4480	0.04	-2910.	-277.	-86.	3897.	1017.	391.	0.717	0.695
160.6	7.73	117.	195.	21.	22.	35.	459.		
24	12.04	-20516.	-4047.	-574.	28771.	5343.	569.	2412.	5.866
12	-3.41	-14554.	-186.	-292.	2908.	7650.	693.	4671.	0.914
0.7530	-2.97	-1237.	260.	-537.	2860.	4940.	667.	0.801	0.646
2.2	-2.40	-2210.	376.	-93.	2234.	2998.	393.	1.025	0.649
0.4471	-0.10	-2265.	-237.	-34.	2666.	1055.	388.	0.727	0.687
163.6	7.58	127.	179.	18.	31.	36.	407.		
25	11.6[illegible]	-5037.	-5247.	-246.	3479.	4201.	518.	1523.	3.091
5	-4.27	-146.	2242.	-133.	3455.	3794.	539.	2914.	0.599
0.6372	-0.95	1671.	1725.	-175.	1972.	2365.	542.	0.643	0.483
8.2	-1.30	-71.	1338.	-9.	1212.	1367.	275.	0.521	0.517
0.2294	-0.10	-642.	-155.	-40.	3868.	616.	287.	0.904	0.410
105.2	6.40	58.	80.	-5.	13.	24.	292.		
25	7.70	-5363.	-4564.	-236.	2061.	2637.	421.	1074.	1.316
6	-1.93	-251.	-7324.	-155.	4577.	2604.	545.	6190.	0.435
0.6822	1.73	1559.	-4716.	-170.	3240.	2003.	485.	0.474	0.462
8.0	2.44	-164.	-3115.	-162.	2217.	1593.	257.	0.567	0.395
0.3017	0.02	-1073.	-767.	-133.	4208.	624.	252.	0.936	0.395
106.2	4.57	14.	40.	-166.	10.	11.	253.		

RUN	THETA	URCP MN	LRCP MN	URRPL MN	URCP OS	LRCP OS	URRPL OS	URSB MN	LVF VTAC
PT	A[illegible]	URN1 MN	LRN1 MN	URYPL MN	URN1 OS	LRN1 OS	URYPL OS	URSB CS	FST VTAC
MAT	[illegible]	URN2 MN	LRN2 MN	URBPL MN	URN2 OS	LRN2 OS	URBPL OS	GB VTAC	#1J VTAC
ALPH	THETA[illegible]	URN3 MN	LRN3 MN	LRRPL MN	URN3 OS	LRN3 OS	LRRPL OS	GB LTAC	#2J VTAC
V/VE	[illegible]	URN4 MN	LRN6 MN	LRYPL MN	URN4 OS	LRN6 OS	LRYPL OS	GB LNAC	LAS LTAC
VKTS	[illegible]	#1[illegible] MN	#2[illegible] MN	LRGPL MN	#1[illegible] OS	#2[illegible] OS	LRGPL OS		
25	12.[illegible]	-50[illegible].	-5[illegible].	-228.	4551.	3709.	652.	1739.	2.322
7	-4.22	1460.	252.	-179.	3069.	3510.	589.	4405.	0.606
0.6757	[illegible].37	2842.	[illegible].	-197.	2242.	2317.	518.	1.064	0.631
9.7	1.37	774.	476.	-29.	1309.	1740.	293.	0.486	0.523
0.2926	-1.93	-231.	-260.	-65.	5294.	758.	306.	1.038	0.482
104.7	7.24	47.	139.	-36.	36.	40.	304.		
25	12.76	-5039.	-5190.	-274.	4347.	3208.	536.	1866.	2.220
4	-5.22	2216.	1143.	-154.	4947.	4367.	612.	2647.	0.483
0.6768	0.55	2275.	1002.	-243.	3162.	2619.	595.	0.660	0.493
7.4	0.36	1115.	332.	-51.	1901.	1384.	295.	0.619	0.454
0.2988	-0.66	-26.	-212.	-75.	4256.	448.	281.	0.888	0.363
134.9	6.02	65.	58.	-49.	15.	17.	283.		
25	12.35	-5576.	-5534.	-344.	4019.	4430.	653.	2232.	2.161
5	-4.24	4677.	2843.	-201.	10311.	11571.	719.	2223.	0.471
0.6313	0.47	5135.	2235.	-310.	7384.	7685.	615.	0.518	0.460
9.6	0.29	2221.	1659.	-70.	4754.	4774.	334.	0.649	0.520
0.2346	-0.14	678.	-141.	-34.	3543.	525.	383.	0.796	0.307
104.2	3.90	59.	95.	-63.	18.	16.	359.		

RUN PT ALPH	MAT V/UR VKTS	URCB MN URN1 MN #1Q MN	LRCB MN LRN1 MN #2Q MN	URCB OS URN1 OS #1Q OS	LRCB OS LRN1 OS #2Q OS	GB VTAC GB LTAC	GB LNAC LAS LTAC	LVF VTAC HST VTAC	#1J VTAC #2J VTAC
28	0.6561	4795.	4165.	2745.	2212.	0.360	0.608	2.362	0.358
6	0.2496	2773.	-6798.	5731.	7534.	0.635	0.209	0.342	0.361
3.3	88.3	126.	164.	29.	38.				
28	0.6534	4716.	4250.	3487.	3076.	0.448	0.785	2.110	0.376
7	0.2514	4451.	-2677.	8136.	9156.	0.686	0.197	0.348	0.423
3.6	88.6	132.	235.	35.	34.				
28	0.6538	3837.	4808.	6793.	4927.	1.128	1.470	3.930	0.810
8	0.2505	7517.	3462.	11101.	10641.	0.914	0.448	0.824	0.786
4.0	88.8	432.	453.	50.	66.				
29	0.6560	4659.	4168.	5280.	2012.	0.643	0.889	0.781	0.492
5	0.2497	6090.	-7602.	6329.	4949.	0.686	0.311	0.564	0.418
6.0	88.6	219.	249.	71.	84.				
29	0.6557	4662.	4477.	6400.	1946.	0.677	0.813	1.435	0.336
6	0.2490	6128.	-6063.	6058.	5322.	0.724	0.390	0.464	0.358
[illegible].6	88.4	209.	240.	51.	52.				
29	0.6575	4751.	4766.	7089.	1988.	0.630	0.362	1.599	0.470
7	0.2489	7003.	-5131.	6945.	5202.	0.498	0.381	0.692	0.389
11.[illegible]	88.7	205.	226.	28.	30.				
29	0.6549	4698.	4509.	4579.	3906.	0.415	0.799	1.751	0.301
[illegible]	0.2504	7070.	58.	10490.	9934.	0.664	0.210	0.513	0.440
6.4	88.2	211.	206.	22.	24.				
29	0.6560	4909.	4368.	4642.	3512.	0.394	1.018	1.811	0.318
9	0.2490	6821.	-3490.	9121.	9877.	0.868	0.247	0.573	0.483
[illegible].2	88.1	217.	233.	29.	22.				
[illegible]	0.6569	5045.	4707.	5552.	3541.	0.643	1.022	1.726	0.325
10	0.2480	7511.	-2358.	10024.	9837.	0.679	0.317	0.601	0.510
[illegible]	87.9	201.	219.	73.	75.				
[illegible]	0.6530	5014.	5612.	5633.	5514.	0.650	1.205	3.267	0.317
11	0.2507	7992.	5213.	12473.	11678.	0.744	0.171	0.847	0.559
[illegible]	88.4	25[illegible].	250.	53.	55.				

[illegible]	[illegible]	[illegible]	FC3 [illegible]	[illegible]	FCB [illegible]	[illegible] VTAC	[illegible]	LVF VTAC	#1J VTAC
[illegible]	V/UR	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	HSI VTAC	#2J VTAC
[illegible]	VOTS	[illegible]	[illegible]	[illegible]	[illegible]				
[illegible]	[illegible]	[illegible]	6221.	[illegible]	4449.	0.447	0.986	1.779	0.300
[illegible]	0.2[illegible]33	7[illegible]	-1115.	10723.	1[illegible]963.	0.773	0.194	0.560	0.581
[illegible]	58.3	201.	249.	25.	33.				
[illegible]	0.6557	[illegible]	6155.	[illegible]776.	5996.	0.580	1.225	1.375	0.367
[illegible]	0.2501	6781.	-6182.	9532.	10897.	0.840	0.[illegible]55	0.662	0.606
[illegible]	38.2	214.	229.	20.	20.				
3.	0.7294	4[illegible]497.	5866.	411.	3144.	0.028	0.558	5.199	0.610
[illegible]	0.4062	4843.	-3988.	1[illegible]340.	12677.	1.277	0.484	0.867	0.658
2.[illegible]	141.9	173.	238.	32.	49.				
[illegible]	0.7530	40513.	6262.	462.	3796.	0.741	0.066	7.230	0.669
[illegible]	0.4027	6097.	-4691.	15101.	15030.	1.262	0.406	1.154	0.692
2.[illegible]	142.1	242.	274.	53.	60.				

SECTION C

Detailed Loads Data

RUN 21 POINT 6
VKTS = 89.3 OMEG*R = 605.6 ALFS,C = 0.3 CLR/S,R =0.02560 CMY/S,R = 0.0210
V/CR = 0.249 RHO100 = 0.2200 CP/S = 0.002247 CDR/S,R =0.00131 CMX/S,R = 0.0006

UPPER ROTOR BLADE NORMAL BENDING MOMENT

	.1R		.2R		.3R		.6R	
HARMONIC	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-6155.6		0.0		-2955.2		-617.3	
1	439.9	-703.3	0.0	0.0	466.0	-665.2	1223.2	-1832.5
2	321.5	-674.3	0.0	0.0	158.7	-247.5	101.8	-235.0
3	203.9	38.6	0.0	0.0	50.5	27.6	-184.4	189.5
4	367.1	-171.7	0.0	0.0	123.7	-22.6	-350.5	245.8
5	23.0	-18.6	0.0	0.0	17.0	-37.6	-39.1	32.4
6	3.4	-80.7	0.0	0.0	-0.7	-37.3	24.5	54.0
7	19.5	-87.9	0.0	0.0	-22.2	-25.5	-40.4	15.1
8	-32.1	48.2	0.0	0.0	7.7	1.0	30.5	-23.2
9	-118.2	138.4	0.0	0.0	-2.8	1.2	71.8	-93.8
10	-21.9	-53.1	0.0	0.0	-9.1	12.5	26.6	22.1

	UPPER ROTOR EDGEWISE BENDING MOMENT .1R		UPPER ROTOR PITCH LINK LOAD		UPPER ROTOR SHAFT STRESS	
HARMONIC	COS	SIN	COS	SIN	COS	SIN
0	0.0		-136.9		2123.2	
1	0.0	0.0	-50.8	189.7	-1186.0	-183.9
2	0.0	0.0	-23.6	29.2	-352.2	-112.4
3	0.0	0.0	-53.2	10.4	-8.0	-44.8
4	0.0	0.0	3.3	-30.4	-196.7	97.3
5	0.0	0.0	-25.8	-22.7	-197.2	40.7
6	0.0	0.0	-5.1	17.7	21.6	18.6
7	0.0	0.0	5.0	15.2	45.0	72.4
8	0.0	0.0	-5.4	18.2	51.0	-57.3
9	0.0	0.0	-3.5	-0.1	19.7	37.0
10	0.0	0.0	8.1	3.1	-15.9	29.5

AD-A110 278 NATIONAL AERONUATICS AND SPACE ADMINISTRATION MOFFET--ETC F/G 20/4
PERFORMANCE AND LOADS DATA FROM A WIND TUNNEL TEST OF A FULL-SC--ETC(U)
OCT 81 F F FELKER

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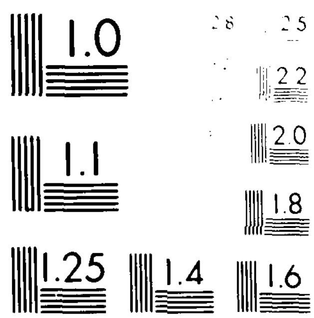

1.0
2.5
2.2
2.0
1.1
1.8
1.25
1.4
1.6

RUN 21 POINT 6
VKTS = 89.3 OMEG*R = 605.6 ALFS,C = 0.3 CLR/S,R =0.02560 CMY/S,R = 0.0210
V/OR = 0.249 RHO100 = 0.2200 CP/S = 0.002247 CDR/S,R =0.00131 CMX/S,R = 0.0006

LOWER ROTOR BLADE NORMAL BENDING MOMENT

	.1R		.2R		.3R		.6R	
HARMONIC	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-11268.2		-7645.3		-4983.3		-943.8	
1	-489.2	527.4	-230.4	524.4	-79.4	510.1	91.2	260.3
2	213.9	813.7	229.8	518.6	119.5	333.2	38.5	57.8
3	159.4	-61.4	97.2	-70.7	62.7	-34.4	28.7	-10.5
4	290.4	-136.9	140.4	-160.3	82.0	-84.2	-47.7	15.1
5	-271.3	-43.7	-166.5	43.0	-91.2	3.6	29.5	0.5
6	-140.3	313.2	12.3	199.8	-16.2	95.6	7.1	-32.6
7	193.2	142.9	104.4	69.7	26.6	56.6	-12.3	-0.2
8	1.7	16.3	9.2	-4.5	5.7	-10.6	-3.6	-4.7
9	-63.1	53.3	10.9	29.6	19.1	-2.6	4.0	-7.2
10	5.0	19.4	6.1	12.9	-1.9	4.7	0.2	-0.6

	LOWER ROTOR EDGEWISE BENDING MOMENT .1R		LOWER ROTOR PITCH LINK LOAD	
HARMONIC	COS	SIN	COS	SIN
0	-4512.5		-164.0	
1	7.6	-510.2	-45.9	117.1
2	-30.2	-216.8	24.9	11.1
3	-17.8	-9.3	1.3	31.9
4	-38.3	45.1	3.1	-3.3
5	12.4	-15.0	-20.1	24.0
6	-22.0	-2.0	12.4	18.3
7	4.3	685.5	10.5	-4.4
8	-21.1	0.4	-0.9	-2.3
9	4.2	-10.0	-1.2	-0.0
10	-1.3	-0.5	5.7	2.1

```
RUN  21      POINT    6
VKTS =        89.3     OMEG*R =    605.6     ALFS,C =        0.3     CLR/S,R =0.02560     CMY/S,R = 0.0210
V/OR =       0.249     RHO100 =   0.2200     CP/S =   0.002247     CDR/S,R =0.00131     CMX/S,R = 0.0006
```

PSI	UPPER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	UR EDGEWISE BENDING .1R	UR PITCH LINK LOAD	UPPER ROTOR SHAFT STRESS
0.00	-4950.	0.	-2166.	247.	0.	-288.	305.
11.25	-5485.	0.	-2515.	59.	0.	-202.	492.
22.50	-6321.	0.	-2884.	81.	0.	-141.	686.
33.75	-7229.	0.	-3184.	16.	0.	-69.	1063.
45.00	-7418.	0.	-3410.	-720.	0.	37.	1406.
56.25	-7284.	0.	-3626.	-1656.	0.	133.	1374.
67.50	-7516.	0.	-3748.	-2160.	0.	148.	1352.
78.75	-7397.	0.	-3716.	-2631.	0.	78.	1728.
90.00	-6658.	0.	-3676.	-3189.	0.	23.	2190.
101.25	-6493.	0.	-3702.	-3128.	0.	31.	2579.
112.50	-6945.	0.	-3687.	-2562.	0.	15.	3028.
123.75	-6807.	0.	-3614.	-2289.	0.	-37.	3208.
135.00	-6286.	0.	-3543.	-2276.	0.	-34.	2905.
146.25	-6200.	0.	-3455.	-2194.	0.	-6.	2665.
157.50	-6119.	0.	-3351.	-2214.	0.	-25.	2831.
168.75	-5857.	0.	-3259.	-2208.	0.	-43.	3015.
180.00	-6086.	0.	-3184.	-1815.	0.	-31.	2958.
191.25	-6603.	0.	-3186.	-1341.	0.	-66.	2880.
202.50	-6781.	0.	-3269.	-1101.	0.	-158.	2973.
213.75	-6885.	0.	-3268.	-771.	0.	-244.	3131.
225.00	-6986.	0.	-3128.	-286.	0.	-299.	3133.
236.25	-6549.	0.	-2970.	-51.	0.	-300.	2993.
247.50	-5861.	0.	-2791.	14.	0.	-251.	2930.
258.75	-5626.	0.	-2525.	374.	0.	-226.	2843.
270.00	-5589.	0.	-2269.	1008.	0.	-260.	2458.
281.25	-5296.	0.	-2127.	1552.	0.	-314.	2031.
292.50	-5134.	0.	-2102.	1973.	0.	-363.	1992.
303.75	-5418.	0.	-2172.	2355.	0.	-365.	2152.
315.00	-5531.	0.	-2204.	2337.	0.	-286.	2040.
326.25	-4949.	0.	-2052.	1635.	0.	-225.	1513.
337.50	-4311.	0.	-1870.	786.	0.	-277.	786.
348.75	-4412.	0.	-1911.	402.	0.	-334.	305.

RUN 21 POINT 6

VKTS = 89.3 OMEG*R = 605.6 ALFS,C = 0.3 CLR/S,R =0.02560 CMY/S,R = 0.0210

V/OR = 0.249 RHO100 = 0.2200 CP/S = 0.002247 CDR/S,R =0.00131 CMX/S,R = 0.0006

PSI	LOWER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	LR EDGEWISE BENDING .1R	LR PITCH LINK LOAD
300.00	-13483.	-9130.	-6092.	-1167.	-4402.	-281.
288.75	-13616.	-9392.	-6174.	-1188.	-4270.	-332.
277.50	-12610.	-8953.	-5821.	-1250.	-3484.	-354.
266.25	-10998.	-8018.	-5337.	-1327.	-3429.	-288.
255.00	-10279.	-7348.	-5073.	-1323.	-4366.	-201.
243.75	-10833.	-7374.	-5066.	-1198.	-4973.	-195.
232.50	-11338.	-7654.	-5121.	-1049.	-4436.	-237.
221.25	-10952.	-7617.	-5074.	-993.	-3714.	-252.
210.00	-10309.	-7314.	-4915.	-1029.	-4013.	-228.
198.75	-10088.	-7082.	-4770.	-1086.	-4925.	-172.
187.50	-10232.	-7030.	-4727.	-1108.	-5097.	-98.
176.25	-10541.	-7095.	-4737.	-1073.	-4353.	-54.
165.00	-10906.	-7262.	-4782.	-999.	-3967.	-43.
153.75	-11218.	-7530.	-4913.	-929.	-4624.	-34.
142.50	-11475.	-7766.	-5028.	-875.	-5294.	-41.
131.25	-11636.	-7800.	-4965.	-814.	-4897.	-67.
120.00	-11486.	-7667.	-4809.	-761.	-4124.	-72.
108.75	-11023.	-7497.	-4720.	-759.	-4355.	-67.
97.50	-10650.	-7294.	-4624.	-784.	-5376.	-81.
86.25	-10617.	-7082.	-4446.	-763.	-5687.	-94.
75.00	-10662.	-6983.	-4334.	-702.	-4926.	-96.
63.75	-10602.	-7005.	-4385.	-659.	-4431.	-108.
52.50	-10714.	-7106.	-4486.	-636.	-5018.	-107.
41.25	-10995.	-7269.	-4541.	-617.	-5671.	-87.
30.00	-10910.	-7309.	-4547.	-647.	-5237.	-82.
18.75	-10548.	-7126.	-4550.	-730.	-4292.	-97.
7.50	-10789.	-7136.	-4671.	-792.	-4176.	-129.
356.25	-11680.	-7637.	-4969.	-816.	-4850.	-204.
345.00	-12230.	-8156.	-5263.	-876.	-4983.	-288.
333.75	-12164.	-8238.	-5371.	-996.	-4032.	-312.
322.50	-12218.	-8219.	-5439.	-1104.	-3301.	-284.
311.25	-12781.	-8562.	-5716.	-1154.	-3648.	-264.

RUN 21 POINT 7
VKTS = 89.4 OMEG*R = 602.8 ALFS,C = 5.8 CLR/S,R =0.07196 CMY/S,R = 0.1112
V/OR = 0.250 RHO100 = 0.2193 CP/S = 0.001602 CDR/S,R =0.00903 CMX/S,R =-0.0053

UPPER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R COS	.1R SIN	.2R COS	.2R SIN	.3R COS	.3R SIN	.6R COS	.6R SIN
0	-3989.4		0.0		-1933.4		117.9	
1	722.0	1060.7	0.0	0.0	583.6	214.7	1270.8	-1092.7
2	445.1	-492.3	0.0	0.0	172.7	-194.2	-12.6	-312.9
3	65.4	115.5	0.0	0.0	-10.4	58.4	-256.2	142.5
4	328.7	-278.0	0.0	0.0	100.4	-79.2	-348.8	330.2
5	-312.4	239.2	0.0	0.0	-63.9	64.9	204.3	-214.1
6	61.7	-279.0	0.0	0.0	9.6	-98.7	35.9	192.5
7	8.2	158.2	0.0	0.0	50.6	17.2	-29.2	-17.2
8	-43.8	-54.1	0.0	0.0	-4.7	8.2	27.7	18.3
9	120.5	-15.8	0.0	0.0	1.5	0.8	-88.0	67.6
10	-60.9	-91.1	0.0	0.0	-11.2	20.6	11.9	69.3

HARMONIC	UPPER ROTOR EDGEWISE BENDING MOMENT .1R COS	SIN	UPPER ROTOR PITCH LINK LOAD COS	SIN	UPPER ROTOR SHAFT STRESS COS	SIN
0	0.0		-195.3		2769.9	
1	0.0	0.0	-94.6	186.3	-2620.8	1313.7
2	0.0	0.0	-30.1	17.6	-579.3	-43.3
3	0.0	0.0	-43.9	-31.4	218.6	-63.6
4	0.0	0.0	4.7	-33.1	-27.3	89.0
5	0.0	0.0	65.3	-42.0	1.2	-245.9
6	0.0	0.0	-14.3	26.6	8.9	95.2
7	0.0	0.0	1.7	57.8	-162.9	-118.3
8	0.0	0.0	-8.4	-2.9	14.1	96.1
9	0.0	0.0	-12.9	5.6	23.4	-39.2
10	0.0	0.0	4.9	28.4	-78.5	117.2

RUN 21 POINT 7
VKTS = 89.4 OMEG*R = 602.8 ALFS,C = 5.8 CLR/S,R =0.07196 CMY/S,R = 0.1112
V/OR = 0.250 RHO100 = 0.2193 CP/S = 0.001602 CDR/S,R =0.00903 CMX/S,R =-0.0053

LOWER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R COS	.1R SIN	.2R COS	.2R SIN	.3R COS	.3R SIN	.6R COS	.6R SIN
0	-3460.9		-2004.3		-1152.1		-471.7	
1	-1969.3	-174.3	-1283.2	192.8	-778.1	334.3	10.1	285.0
2	152.9	260.2	79.7	115.3	-11.7	46.8	-70.3	-18.2
3	37.0	-124.5	11.4	-79.0	12.0	-43.9	19.5	-16.6
4	286.5	127.7	184.5	7.3	86.9	18.0	-58.5	-19.0
5	-87.7	7.0	-42.2	23.9	-30.2	16.4	13.7	-2.9
6	41.9	403.3	134.3	195.7	43.6	98.4	-9.4	-45.6
7	167.8	9.8	92.4	-99.5	28.8	-37.0	-27.3	-6.7
8	-85.8	-11.7	-21.6	4.0	8.1	-12.6	-0.9	-3.5
9	47.8	131.4	50.8	36.3	0.4	5.2	-6.4	-12.9
10	64.2	13.1	23.1	-13.8	9.1	7.7	-6.0	1.0

HARMONIC	LOWER ROTOR EDGEWISE BENDING MOMENT .1R COS	SIN	LOWER ROTOR PITCH LINK LOAD COS	SIN
0	-4999.8		-103.4	
1	1274.7	-603.4	-133.1	107.6
2	-12.2	-114.2	26.4	6.7
3	-5.0	42.8	-26.4	-20.3
4	-16.7	7.1	4.4	4.2
5	29.9	-13.4	3.3	-7.6
6	-37.2	-18.1	23.1	0.1
7	464.7	-443.9	14.5	-11.4
8	-4.0	18.7	5.6	7.3
9	3.5	-4.8	13.5	15.8
10	-4.8	8.6	-4.0	-25.4

RUN 21 POINT 7
VKTS = 89.4 OMEG*R = 602.8 ALFS,C = 5.8 CLR/S,R =0.07196 CMY/S,R = 0.1112
V/CR = 0.250 RHO100 = 0.2193 CP/S = 0.001602 CDR/S,R =0.00903 CMX/S,R =-0.0053

PSI	UPPER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	UR EDGEWISE BENDING .1R	UR PITCH LINK LOAD	UPPER ROTOR SHAFT STRESS
0.00	-2655.	0.	-1105.	934.	0.	-323.	-433.
11.25	-2903.	0.	-1206.	1138.	0.	-240.	25.
22.50	-2898.	0.	-1393.	833.	0.	-319.	416.
33.75	-3033.	0.	-1474.	486.	0.	-348.	964.
45.00	-3350.	0.	-1476.	450.	0.	-177.	1796.
56.25	-3518.	0.	-1638.	190.	0.	51.	2412.
67.50	-3580.	0.	-1874.	-435.	0.	189.	3090.
78.75	-3490.	0.	-1916.	-1073.	0.	146.	4059.
90.00	-3140.	0.	-1804.	-1603.	0.	-36.	4616.
101.25	-2841.	0.	-1755.	-1818.	0.	-113.	4916.
112.50	-2930.	0.	-1897.	-1420.	0.	-37.	5661.
123.75	-3542.	0.	-2193.	-693.	0.	-11.	6238.
135.00	-4294.	0.	-2330.	-382.	0.	-36.	6054.
146.25	-4035.	0.	-2092.	-913.	0.	-13.	5511.
157.50	-2765.	0.	-1814.	-1771.	0.	-37.	4748.
168.75	-2475.	0.	-1892.	-1926.	0.	-122.	4197.
180.00	-3862.	0.	-2228.	-1270.	0.	-154.	4648.
191.25	-5257.	0.	-2573.	-653.	0.	-152.	5150.
202.50	-5883.	0.	-2820.	-346.	0.	-128.	4461.
213.75	-6208.	0.	-2868.	-159.	0.	-87.	3701.
225.00	-5982.	0.	-2751.	-334.	0.	-201.	3783.
236.25	-5381.	0.	-2636.	-616.	0.	-430.	3595.
247.50	-5346.	0.	-2515.	-228.	0.	-445.	2872.
258.75	-5499.	0.	-2342.	561.	0.	-292.	2486.
270.00	-5161.	0.	-2214.	1126.	0.	-283.	2195.
281.25	-5030.	0.	-2107.	1825.	0.	-368.	1547.
292.50	-5184.	0.	-1922.	2614.	0.	-396.	842.
303.75	-4674.	0.	-1739.	2685.	0.	-430.	121.
315.00	-3821.	0.	-1597.	2244.	0.	-420.	-389.
326.25	-3384.	0.	-1395.	1936.	0.	-321.	-229.
337.50	-2980.	0.	-1195.	1474.	0.	-322.	-43.
348.75	-2561.	0.	-1109.	916.	0.	-394.	-376.

RUN 21 POINT 7
VKTS = 89.4 OMEG*R = 602.8 ALFS,C = 5.8 CLR/S,R =0.07196 CMY/S,R = 0.1112
V/OR = 0.250 RHO100 = 0.2193 CP/S = 0.001602 CDR/S,R =0.00903 CMX/S,R =-0.0053

	LOWER ROTOR BLADE NORMAL BENDING MOMENT				LR EDGEWISE	LR PITCH
PSI	.1R	.2R	.3R	.6R	BENDING .1R	LINK LOAD
300.00	-4602.	-2851.	-1807.	-667.	-3140.	-262.
288.75	-4415.	-2818.	-1831.	-673.	-3929.	-239.
277.50	-4167.	-2762.	-1742.	-701.	-4722.	-243.
266.25	-3174.	-2288.	-1401.	-763.	-4624.	-300.
255.00	-1994.	-1476.	-1052.	-796.	-4281.	-235.
243.75	-2086.	-1186.	-970.	-697.	-4761.	-119.
232.50	-2785.	-1559.	-1020.	-554.	-5813.	-137.
221.25	-2307.	-1604.	-927.	-554.	-6225.	-128.
210.00	-1040.	-942.	-656.	-663.	-5714.	16.
198.75	-508.	-323.	-355.	-715.	-5449.	83.
187.50	-839.	-260.	-209.	-677.	-6210.	62.
176.25	-1375.	-544.	-300.	-595.	-7014.	95.
165.00	-1886.	-860.	-463.	-479.	-6648.	87.
153.75	-2300.	-1054.	-501.	-355.	-5715.	13.
142.50	-2538.	-1125.	-455.	-260.	-5671.	28.
131.25	-2670.	-1210.	-455.	-194.	-6467.	63.
120.00	-2840.	-1373.	-517.	-153.	-6703.	8.
108.75	-3116.	-1523.	-587.	-140.	-5884.	-7.
97.50	-3356.	-1600.	-629.	-145.	-5124.	30.
86.25	-3487.	-1689.	-693.	-154.	-5369.	-16.
75.00	-3830.	-1951.	-895.	-162.	-5905.	-65.
63.75	-4490.	-2373.	-1209.	-180.	-5485.	-30.
52.50	-5072.	-2748.	-1461.	-211.	-4364.	-37.
41.25	-5361.	-3007.	-1611.	-253.	-3924.	-126.
30.00	-5279.	-3166.	-1712.	-339.	-4440.	-206.
18.75	-4739.	-3052.	-1729.	-496.	-4676.	-235.
7.50	-4447.	-2771.	-1718.	-617.	-3930.	-203.
356.25	-5106.	-2874.	-1844.	-577.	-3115.	-176.
345.00	-5790.	-3357.	-2059.	-486.	-3280.	-244.
333.75	-5483.	-3540.	-2141.	-524.	-3997.	-303.
322.50	-4909.	-3268.	-2037.	-635.	-4051.	-254.
311.25	-4753.	-2984.	-1878.	-675.	-3363.	-230.

RUN 21 POINT 8

VKTS =	90.0	OMEG*R =	604.9	ALFS,C =	6.0	CLR/S,R =	0.09316	CMY/S,R =	0.1366
V/OP =	0.251	RHO100 =	0.2185	CP/S =	0.002323	CDR/S,R =	0.01058	CMX/S,R =	-0.0050

UPPER ROTOR BLADE NORMAL BENDING MOMENT

	.1R		.2R		.3R		.6R	
HARMONIC	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-1977.1		0.0		-907.6		841.7	
1	-296.2	2632.2	0.0	0.0	44.5	958.1	695.1	-454.7
2	685.0	-275.9	0.0	0.0	280.0	-76.6	46.8	-187.4
3	12.8	155.2	0.0	0.0	-33.2	74.2	-342.1	101.5
4	385.5	-342.0	0.0	0.0	105.3	-102.9	-411.6	375.9
5	-333.4	326.4	0.0	0.0	-66.7	72.4	227.1	-296.6
6	69.1	-314.7	0.0	0.0	13.7	-113.7	53.7	239.6
7	5.7	98.5	0.0	0.0	49.1	-21.9	-52.4	-42.1
8	-101.0	-38.4	0.0	0.0	0.9	11.9	66.0	14.4
9	80.8	-8.2	0.0	0.0	13.7	-0.2	-35.5	56.1
10	-17.8	-173.5	0.0	0.0	-25.5	13.1	-0.1	106.9

	UPPER ROTOR EDGEWISE BENDING MOMENT .1R		UPPER ROTOR PITCH LINK LOAD		UPPER ROTOR SHAFT STRESS	
HARMONIC	COS	SIN	COS	SIN	COS	SIN
0	0.0		-195.9		3124.2	
1	0.0	0.0	-105.0	213.3	-521.1	2282.0
2	0.0	0.0	-32.7	18.7	-501.7	-23.2
3	0.0	0.0	-56.3	-39.8	162.8	-35.2
4	0.0	0.0	-8.3	-36.0	64.4	191.0
5	0.0	0.0	60.0	-65.2	-16.3	-320.6
6	0.0	0.0	-1.6	18.5	13.1	86.3
7	0.0	0.0	-27.9	79.1	-144.5	-66.3
8	0.0	0.0	-14.9	2.3	74.0	12.9
9	0.0	0.0	-7.3	10.4	0.9	-22.2
10	0.0	0.0	17.8	24.0	-104.2	141.3

RUN 21 POINT 8
VKTS = 90.0 OMEG*R = 604.9 ALFS,C = 6.0 CLR/S,R =0.09316 CMY/S,R = 0.1366
V/OR = 0.251 RHO100 = 0.2185 CP/S = 0.002323 CDR/S,R =0.01058 CMX/S,R =-0.0050

LOWER ROTOR BLADE NORMAL BENDING MOMENT

	.1R		.2R		.3R		.6R	
HARMONIC	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-955.9		-170.7		96.6		-294.6	
1	722.6	-1060.0	615.6	-587.3	534.9	-124.1	226.1	253.4
2	59.1	351.9	11.5	228.8	-67.4	162.1	-100.1	56.0
3	-30.2	-136.9	-36.1	-79.5	-8.3	-53.9	32.7	-25.1
4	246.5	185.0	180.9	64.9	78.7	64.0	-56.6	-25.2
5	-68.4	-7.9	-42.6	26.9	-30.0	29.1	9.7	0.1
6	110.2	483.8	191.5	223.5	62.6	125.1	-20.0	-53.5
7	246.4	17.9	112.0	-85.6	44.7	-29.0	-27.5	0.6
8	-137.7	-16.4	-46.1	15.2	3.5	-25.0	8.9	-4.4
9	-107.9	102.7	-3.8	61.0	1.2	-3.5	9.0	-9.2
10	54.1	25.6	31.4	-27.7	9.1	-12.4	-8.2	-0.2

	LOWER ROTOR EDGEWISE BENDING MOMENT .1R		LOWER ROTOR PITCH LINK LOAD	
HARMONIC	COS	SIN	COS	SIN
0	-5291.1		-82.0	
1	1772.5	-524.5	-130.5	110.1
2	-360.0	-417.0	30.6	16.7
3	25.3	42.6	-24.7	-9.2
4	3.5	41.8	2.0	7.9
5	36.7	-27.1	-3.1	-11.9
6	-78.8	-24.7	33.8	-4.0
7	447.7	-427.4	22.6	-20.6
8	29.4	62.7	2.8	10.0
9	-13.0	-44.4	34.5	11.4
10	-45.6	3.5	-15.8	-14.5

RUN 21 POINT 8
VKTS = 90.0 OMEG*R = 604.9 ALFS,C = 6.0 CLR/S,R = 0.09316 CMY/S,R = 0.1366
V/OR = 0.251 RHO1OO = 0.2185 CP/S = 0.002323 CDR/S,R = 0.01058 CMX/S,R = -0.0050

PSI	UPPER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	UP EDGEWISE BENDING .1R	UR PITCH LINK LOAD	UPPER ROTOR SHAFT STRESS
0.00	-1487.	0.	-526.	1089.	0.	-372.	2152.
11.25	-1395.	0.	-490.	1398.	0.	-284.	2760.
22.50	-793.	0.	-459.	1222.	0.	-340.	3143.
33.75	-616.	0.	-301.	1255.	0.	-343.	3668.
45.00	-855.	0.	-121.	1539.	0.	-160.	4439.
56.25	-652.	0.	-199.	1300.	0.	108.	4731.
67.50	-397.	0.	-385.	755.	0.	281.	4988.
78.75	-299.	0.	-309.	288.	0.	175.	5685.
90.00	268.	0.	-92.	-359.	0.	-84.	5896.
101.25	791.	0.	-60.	-710.	0.	-126.	5705.
112.50	441.	0.	-227.	-67.	0.	28.	6101.
123.75	-313.	0.	-451.	910.	0.	68.	6339.
135.00	-743.	0.	-515.	1158.	0.	-5.	5522.
146.25	-313.	0.	-246.	501.	0.	-42.	4377.
157.50	923.	0.	42.	-464.	0.	-69.	3432.
168.75	1238.	0.	-96.	-700.	0.	-89.	2887.
180.00	-426.	0.	-541.	104.	0.	-99.	3188.
191.25	-2355.	0.	-995.	888.	0.	-149.	3441.
202.50	-3337.	0.	-1439.	994.	0.	-144.	2648.
213.75	-4062.	0.	-1755.	838.	0.	-80.	1916.
225.00	-4342.	0.	-1802.	459.	0.	-197.	1893.
236.25	-3941.	0.	-1802.	-85.	0.	-441.	1566.
247.50	-4157.	0.	-1927.	-24.	0.	-483.	1201.
258.75	-4995.	0.	-2028.	622.	0.	-364.	1598.
270.00	-5126.	0.	-2048.	1150.	0.	-322.	1815.
281.25	-4979.	0.	-2031.	1748.	0.	-342.	1365.
292.50	-5184.	0.	-1921.	2457.	0.	-412.	1073.
303.75	-4820.	0.	-1760.	2533.	0.	-516.	881.
315.00	-3915.	0.	-1610.	2121.	0.	-449.	682.
326.25	-3280.	0.	-1343.	1809.	0.	-274.	1152.
337.50	-2505.	0.	-953.	1331.	0.	-309.	1816.
348.75	-1641.	0.	-657.	871.	0.	-436.	1916.

RUN 21 POINT 8
VKTS = 90.0 OMEG*R = 604.9 ALFS,C = 6.0 CLR/S,R =0.09316 CMY/S,R = 0.1366
V/OR = 0.251 RHO100 = 0.2185 CP/S = 0.002323 CDR/S,R =0.01058 CMX/S,R =-0.0050

	LOWER ROTOR BLADE NORMAL BENDING MOMENT				LR EDGEWISE	LR PITCH
	.1R	.2R	.3R	.6R	BENDING .1R	LINK LOAD
PSI						
300.00	419.	741.	513.	-461.	-2921.	-240.
288.75	-212.	463.	255.	-450.	-3753.	-227.
277.50	-669.	51.	131.	-437.	-4446.	-224.
266.25	166.	198.	247.	-520.	-4573.	-282.
255.00	928.	751.	373.	-595.	-4765.	-220.
243.75	-21.	598.	211.	-504.	-5494.	-69.
232.50	-1304.	-260.	-132.	-379.	-6579.	-88.
221.25	-1125.	-611.	-276.	-429.	-7236.	-146.
210.00	-296.	-238.	-175.	-596.	-6954.	6.
198.75	-180.	25.	-102.	-723.	-6649.	147.
187.50	-782.	-154.	-204.	-756.	-7364.	100.
176.25	-1712.	-630.	-454.	-687.	-8176.	80.
165.00	-2538.	-1221.	-729.	-559.	-7644.	118.
153.75	-2796.	-1527.	-824.	-461.	-6400.	60.
142.50	-2708.	-1427.	-693.	-379.	-6069.	14.
131.25	-2693.	-1304.	-514.	-257.	-6663.	68.
120.00	-2549.	-1236.	-366.	-146.	-6754.	66.
108.75	-2210.	-998.	-187.	-79.	-5760.	14.
97.50	-2011.	-725.	23.	-1.	-4876.	18.
86.25	-1833.	-548.	222.	76.	-5227.	-2.
75.00	-1411.	-322.	360.	99.	-5942.	-61.
63.75	-1130.	-126.	365.	104.	-5566.	-33.
52.50	-1356.	-163.	321.	138.	-4519.	25.
41.25	-1548.	-249.	397.	145.	-4208.	-43.
30.00	-918.	-48.	559.	48.	-4674.	-177.
18.75	193.	455.	688.	-122.	-4814.	-219.
7.50	531.	861.	758.	-228.	-4107.	-159.
356.25	-129.	740.	671.	-201.	-3241.	-135.
345.00	-618.	286.	397.	-153.	-3227.	-228.
333.75	-402.	125.	244.	-201.	-3846.	-308.
322.50	-11.	372.	410.	-309.	-3818.	-262.
311.25	337.	661.	603.	-405.	-3052.	-217.

RUN 21 POINT 9

VKTS =	89.8	OMEG*R =	604.5	ALFS,C =	6.2	CLR/S,R =	0.12079	CMY/S,R =	0.1746
V/OR =	0.251	RHO100 =	0.2181	CP/S =	0.003962	CDR/S,R =	0.01305	CMX/S,R =	-0.0064

UPPER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R COS	.1R SIN	.2R COS	.2R SIN	.3R COS	.3R SIN	.6R COS	.6R SIN
0	601.9		0.0		420.1		1968.9	
1	742.6	4712.7	0.0	0.0	508.8	1973.9	1069.4	367.2
2	517.2	-674.7	0.0	0.0	168.0	-318.6	-277.2	-703.5
3	-78.9	179.2	0.0	0.0	-74.1	86.2	-339.6	114.2
4	151.9	-560.6	0.0	0.0	33.7	-194.1	-175.4	590.8
5	-381.1	380.6	0.0	0.0	-73.9	62.6	232.6	-363.7
6	-2.0	-486.1	0.0	0.0	-17.5	-157.7	151.4	336.7
7	21.4	163.1	0.0	0.0	52.8	-58.0	-73.4	-62.6
8	-136.2	-117.5	0.0	0.0	-21.8	17.6	84.2	67.1
9	107.6	-10.1	0.0	0.0	6.5	1.1	-24.6	63.5
10	-68.2	-170.6	0.0	0.0	-15.0	20.5	59.4	137.3

HARMONIC	UPPER ROTOR EDGEWISE BENDING MOMENT .1R COS	SIN	UPPER ROTOR PITCH LINK LOAD COS	SIN	UPPER ROTOR SHAFT STRESS COS	SIN
0	0.0		-199.0		3612.8	
1	0.0	0.0	-115.3	252.4	-1426.4	3344.0
2	0.0	0.0	-14.0	52.3	-540.6	75.4
3	0.0	0.0	-62.3	-46.4	205.4	-46.2
4	0.0	0.0	-59.2	-8.2	249.2	132.5
5	0.0	0.0	67.0	-143.2	-130.0	-475.4
6	0.0	0.0	99.5	5.7	63.9	110.8
7	0.0	0.0	-27.7	134.0	-355.4	-35.9
8	0.0	0.0	-5.3	31.1	6.6	275.9
9	0.0	0.0	22.8	8.2	-18.3	-47.4
10	0.0	0.0	2.0	5.4	-98.0	239.6

RUN 21	POINT 9				
VKTS =	89.8	OMEG*R = 604.5	ALFS,C = 6.2	CLR/S,R =0.12079	CMY/S,R = 0.1746
V/CR =	0.251	RHO100 = 0.2181	CP/S = 0.003962	CDR/S,R =0.01305	CMX/S,R =-0.0064

LOWER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R COS	.1R SIN	.2R COS	.2R SIN	.3R COS	.3R SIN	.6R COS	.6R SIN
0	2559.8		2384.8		1842.9		-56.1	
1	-674.6	-2600.1	-499.3	-1545.3	-246.5	-773.5	75.0	193.9
2	-459.2	124.2	-387.6	131.4	-357.8	73.0	-226.3	29.5
3	-144.2	-214.4	-127.6	-97.6	-59.7	-63.2	32.5	-15.5
4	-77.6	536.8	55.3	353.3	-15.6	198.8	-17.0	-86.6
5	35.1	272.0	69.4	151.5	1.3	99.5	-5.6	-25.8
6	32.3	693.6	211.4	352.3	55.6	187.3	-15.3	-75.9
7	207.3	28.1	125.7	-57.5	63.0	-14.0	-24.4	-6.9
8	-199.6	-216.2	-121.2	-25.7	8.0	-18.0	19.7	14.0
9	-51.1	-143.7	-47.3	-33.6	15.9	-8.5	9.2	18.3
10	29.6	-132.1	-11.5	-57.1	34.6	-5.9	-6.4	12.7

HARMONIC	LOWER ROTOR EDGEWISE BENDING MOMENT .1R COS	SIN	LOWER ROTOR PITCH LINK LOAD COS	SIN
0	-5496.9		-10.5	
1	2864.1	616.2	-188.6	123.5
2	206.7	-372.3	-18.8	21.5
3	63.7	94.9	-10.2	-58.2
4	72.7	44.6	24.9	3.0
5	-20.1	16.6	42.5	14.2
6	-107.4	-71.7	47.6	19.4
7	303.0	67.4	4.4	-9.6
8	-2.7	55.0	-3.2	7.5
9	30.9	27.6	-6.6	10.1
10	5.2	-1.9	10.4	-10.8

RUN 21 POINT 9
VKTS = 89.8 OMEG*R = 604.5 ALFS,C = 6.2 CLR/S,R =0.12079 CMY/S,R = 0.1746
V/OR = 0.251 RHO100 = 0.2181 CP/S = 0.003962 CDR/S,R =0.01305 CMX/S,R =-0.0064

	UPPER ROTOR BLADE NORMAL BENDING MOMENT				UR EDGEWISE	UR PITCH	UPPER ROTOR
PSI	.1R	.2R	.3R	.6R	BENDING .1R	LINK LOAD	SHAFT STRESS
0.00	1476.	0.	988.	2676.	0.	-291.	1569.
11.25	1739.	0.	1065.	2997.	0.	-255.	2857.
22.50	2942.	0.	1324.	2495.	0.	-428.	3301.
33.75	3762.	0.	1791.	2420.	0.	-418.	3711.
45.00	3964.	0.	2185.	2775.	0.	-23.	4908.
56.25	4288.	0.	2187.	2719.	0.	408.	5803.
67.50	4459.	0.	2027.	2576.	0.	432.	6381.
78.75	4481.	0.	2104.	2451.	0.	36.	7110.
90.00	4912.	0.	2306.	1960.	0.	-321.	7347.
101.25	5242.	0.	2295.	1806.	0.	-209.	7484.
112.50	4787.	0.	1997.	2520.	0.	187.	8147.
123.75	3758.	0.	1602.	3219.	0.	309.	8166.
135.00	2799.	0.	1453.	3056.	0.	49.	7152.
146.25	2983.	0.	1616.	1873.	0.	-190.	6027.
157.50	4139.	0.	1584.	308.	0.	-183.	4800.
168.75	3657.	0.	990.	-82.	0.	-91.	4145.
180.00	653.	0.	147.	947.	0.	-61.	5019.
191.25	-2100.	0.	-605.	1558.	0.	-67.	5290.
202.50	-3197.	0.	-1247.	1053.	0.	-64.	3385.
213.75	-3829.	0.	-1659.	422.	0.	-73.	1956.
225.00	-4054.	0.	-1736.	-124.	0.	-163.	2241.
236.25	-3730.	0.	-1702.	-515.	0.	-369.	2019.
247.50	-4052.	0.	-1741.	-11.	0.	-566.	1207.
258.75	-4742.	0.	-1783.	1048.	0.	-557.	1309.
270.00	-4570.	0.	-1713.	1929.	0.	-381.	1540.
281.25	-4155.	0.	-1458.	2957.	0.	-332.	1003.
292.50	-3902.	0.	-1083.	3834.	0.	-502.	122.
303.75	-2884.	0.	-769.	3713.	0.	-595.	-816.
315.00	-1453.	0.	-443.	3207.	0.	-443.	-820.
326.25	-390.	0.	103.	2893.	0.	-330.	626.
337.50	730.	0.	674.	2303.	0.	-425.	1507.
348.75	1554.	0.	943.	2023.	0.	-453.	1113.

RUN 21 POINT 9

VKTS =	89.8	OMEG*R =	604.5	ALFS,C =	6.2	CLR/S,R =0.12079	CMY/S,R = 0.1746
V/OR =	0.251	RHO100 =	0.2181	CP/S =	0.003962	CDR/S,R =0.01305	CMX/S,R =-0.0064

PSI	LOWER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	LR EDGEWISE BENDING .1R	LR PITCH LINK LOAD
300.00	5818.	4536.	2904.	-261.	-4282.	-142.
288.75	4769.	4131.	2768.	-93.	-5610.	-130.
277.50	4505.	3708.	2649.	-3.	-6119.	-211.
266.25	5280.	3916.	2779.	-32.	-5986.	-232.
255.00	5912.	4407.	2980.	-74.	-6432.	-101.
243.75	5370.	4348.	2863.	-38.	-7865.	17.
232.50	4381.	3706.	2565.	-15.	-8994.	39.
221.25	4542.	3444.	2486.	-151.	-8662.	82.
210.00	5368.	3832.	2540.	-376.	-7801.	149.
198.75	5008.	3930.	2432.	-494.	-8036.	178.
187.50	3490.	3250.	2103.	-461.	-8978.	203.
176.25	2124.	2308.	1630.	-345.	-8819.	198.
165.00	1356.	1626.	1253.	-220.	-7361.	122.
153.75	1114.	1380.	1214.	-143.	-6409.	95.
142.50	1163.	1449.	1353.	-73.	-6900.	158.
131.25	1072.	1487.	1419.	43.	-7456.	172.
120.00	934.	1452.	1463.	145.	-6585.	139.
108.75	822.	1462.	1504.	227.	-5015.	163.
97.50	479.	1345.	1489.	348.	-4564.	192.
86.25	488.	1224.	1513.	404.	-5324.	185.
75.00	1000.	1402.	1491.	322.	-5525.	190.
63.75	498.	1345.	1233.	291.	-4283.	140.
52.50	-821.	697.	995.	341.	-2965.	-30.
41.25	-477.	460.	1061.	211.	-2975.	-201.
30.00	1283.	1165.	1232.	-86.	-3496.	-248.
18.75	1893.	1807.	1356.	-257.	-2959.	-189.
7.50	1422.	1804.	1428.	-253.	-1800.	-114.
356.25	1232.	1571.	1247.	-187.	-1743.	-126.
345.00	1104.	1323.	975.	-74.	-2863.	-233.
333.75	1521.	1412.	1246.	-23.	-3558.	-306.
322.50	3563.	2458.	2068.	-158.	-3284.	-281.
311.25	5699.	3932.	2737.	-311.	-3248.	-213.

RUN 21 POINT 10

VKTS =	89.9	OMEG*R = 607.3	ALFS,C = 6.4	CLR/S,R =0.13876	CMY/S,R = 0.1901
V/OR =	0.250	RHO1CC = 0.2169	CP/S = 0.007045	CDR/S,R =0.01286	CMX/S,R =-0.0043

UPPER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R COS	.1R SIN	.2R COS	.2R SIN	.3R COS	.3R SIN	.6R COS	.6R SIN
0	3849.1		0.0		2097.1		3231.2	
1	-1206.4	5411.0	0.0	0.0	-467.4	2189.4	96.3	352.9
2	-326.5	-546.1	0.0	0.0	-243.4	-306.3	-1353.2	-550.5
3	-136.3	185.3	0.0	0.0	-100.0	118.7	-282.3	409.2
4	-237.0	-765.9	0.0	0.0	-57.3	-229.5	176.6	741.5
5	-238.7	208.1	0.0	0.0	-62.5	16.1	182.6	-229.8
6	32.5	-545.4	0.0	0.0	-8.3	-201.1	147.1	375.2
7	55.4	198.9	0.0	0.0	40.8	-43.3	-79.9	-67.3
8	-234.2	9.4	0.0	0.0	29.3	-11.9	152.4	-31.2
9	-79.3	8.2	0.0	0.0	-1.1	10.4	116.9	27.0
10	-29.9	-156.7	0.0	0.0	-22.8	12.9	44.0	163.1

HARMONIC	UPPER ROTOR EDGEWISE BENDING MOMENT .1R COS	SIN	UPPER ROTOR PITCH LINK LOAD COS	SIN	UPPER ROTOR SHAFT STRESS COS	SIN
0	0.0		-168.8		4320.4	
1	0.0	0.0	-141.4	357.1	-251.8	4170.0
2	0.0	0.0	48.7	-48.0	-646.0	-22.7
3	0.0	0.0	-62.2	64.4	408.0	-383.1
4	0.0	0.0	-62.8	15.6	251.9	281.3
5	0.0	0.0	-75.8	-98.5	-140.9	-390.1
6	0.0	0.0	24.5	18.7	51.0	-42.0
7	0.0	0.0	55.5	122.3	-301.1	-22.0
8	0.0	0.0	-23.3	0.4	132.1	-9.5
9	0.0	0.0	1.7	-28.5	67.8	61.0
10	0.0	0.0	10.6	45.8	-105.9	189.3

RUN 21 POINT 10
VKTS = 89.9 OMEG*R = 607.3 ALFS,C = 6.4 CLR/S,R =0.13876 CMY/S,R = 0.1901
V/CR = 0.250 RHO100 = 0.2169 CP/S = 0.007045 CDR/S,R =0.01286 CMX/S,R =-0.0043

LOWER ROTOR BLADE NORMAL BENDING MOMENT

	.1R		.2R		.3R		.6R	
HARMONIC	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	3936.8		3437.5		2524.6		28.4	
1	2238.4	-2271.7	1632.4	-1459.4	1194.8	-659.2	315.1	228.4
2	-1398.4	722.8	-966.2	678.7	-787.3	464.6	-328.2	154.3
3	-287.7	-120.6	-209.7	-32.1	-111.0	-31.8	60.6	-21.4
4	-493.4	715.4	-127.1	526.4	-97.6	262.5	51.1	-133.3
5	-176.1	217.1	-56.8	177.2	-51.9	98.1	25.8	-25.1
6	-80.5	683.4	172.8	385.2	52.8	196.0	0.4	-81.7
7	161.2	-174.9	43.1	-118.6	55.1	-33.0	-15.9	13.9
8	-50.0	-311.8	-94.7	-106.8	28.2	-24.7	1.5	33.4
9	558.7	-224.7	107.2	-227.3	18.3	16.7	-49.3	36.5
10	45.1	-189.8	-31.2	-64.4	24.0	6.2	-2.0	13.4

	LOWER ROTOR EDGEWISE BENDING MOMENT .1R		LOWER ROTOR PITCH LINK LOAD	
HARMONIC	COS	SIN	COS	SIN
0	-5460.5		5.4	
1	3819.2	1608.2	-214.4	173.9
2	338.7	-1718.3	-61.7	61.5
3	237.5	142.7	-7.1	-61.6
4	11.1	31.9	36.1	17.3
5	-92.0	40.5	33.6	31.9
6	-156.5	-171.9	13.9	20.3
7	378.2	26.6	-28.3	-52.3
8	-60.3	139.5	4.4	-51.6
9	92.5	206.7	-0.1	-36.5
10	35.2	63.1	-41.1	30.7

RUN 21 POINT 10

VKTS =	89.9	OMEG*R =	607.3	ALFS,C =	6.4	CLR/S,R =0.13876	CMY/S,R = 0.1901
V/OR =	0.250	RHO100 =	0.2169	CP/S =	0.007045	CDR/S,R =0.01286	CMX/S,R =-0.0043

PSI	UPPER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	UR EDGEWISE BENDING .1R	UR PITCH LINK LOAD	UPPER ROTOR SHAFT STRESS
0.00	1399.	0.	1204.	2432.	0.	-393.	3785.
11.25	2118.	0.	1278.	2913.	0.	-217.	4535.
22.50	3897.	0.	1779.	2631.	0.	-189.	4915.
33.75	5335.	0.	2702.	2986.	0.	-74.	5768.
45.00	6600.	0.	3563.	3377.	0.	149.	6890.
56.25	8480.	0.	3854.	3228.	0.	261.	7171.
67.50	8852.	0.	3842.	3813.	0.	170.	7703.
78.75	8330.	0.	4094.	4767.	0.	-119.	9126.
90.00	8945.	0.	4484.	4530.	0.	-295.	9651.
101.25	10045.	0.	4585.	4139.	0.	39.	9313.
112.50	9829.	0.	4437.	4870.	0.	485.	9653.
123.75	8811.	0.	4253.	5363.	0.	395.	9491.
135.00	8254.	0.	4122.	4573.	0.	115.	7536.
146.25	8445.	0.	4087.	3173.	0.	165.	5397.
157.50	8819.	0.	3940.	1873.	0.	243.	4325.
168.75	7759.	0.	3345.	1508.	0.	122.	4017.
180.00	4709.	0.	2385.	2364.	0.	51.	4221.
191.25	1910.	0.	1466.	2936.	0.	-4.	4022.
202.50	951.	0.	861.	2347.	0.	-158.	2829.
213.75	759.	0.	638.	1683.	0.	-280.	1995.
225.00	589.	0.	620.	1512.	0.	-449.	1929.
236.25	549.	0.	513.	1671.	0.	-681.	1326.
247.50	-10.	0.	318.	2568.	0.	-617.	588.
258.75	-1062.	0.	224.	3954.	0.	-348.	820.
270.00	-1541.	0.	203.	4914.	0.	-382.	1159.
281.25	-1475.	0.	200.	5408.	0.	-626.	882.
292.50	-1407.	0.	275.	5433.	0.	-657.	481.
303.75	-1043.	0.	356.	4615.	0.	-496.	149.
315.00	-235.	0.	430.	3366.	0.	-331.	448.
326.25	797.	0.	698.	2131.	0.	-286.	1841.
337.50	1736.	0.	1090.	1097.	0.	-439.	3012.
348.75	1828.	0.	1260.	1223.	0.	-553.	3272.

RUN 21 POINT 10

VKTS = 89.9 OMEG*R = 607.3 ALFS,C = 6.4 CLR/S,R =0.13876 CMY/S,R = 0.1901

V/OR = 0.250 RHO100 = 0.2169 CP/S = 0.007045 CDR/S,R =0.01286 CMX/S,R =-0.0043

	LOWER ROTOR BLADE NORMAL BENDING MOMENT				LR EDGEWISE	LR PITCH
PSI	.1R	.2R	.3R	.6R	BENDING .1R	LINK LOAD
300.00	8051.	6557.	4222.	-179.	-4023.	-92.
288.75	7179.	5828.	3959.	46.	-4987.	-243.
277.50	7113.	5499.	3676.	127.	-6475.	-252.
266.25	6641.	5340.	3673.	181.	-7720.	-111.
255.00	6653.	5221.	3702.	173.	-8530.	-106.
243.75	6588.	5097.	3333.	79.	-9777.	-30.
232.50	4835.	4288.	2737.	9.	-11038.	156.
221.25	3493.	3208.	2327.	-140.	-11141.	138.
210.00	4177.	3030.	2051.	-487.	-10550.	92.
198.75	3833.	3070.	1654.	-751.	-10426.	241.
187.50	1094.	1969.	1080.	-698.	-10399.	269.
176.25	-976.	409.	425.	-541.	-9288.	131.
165.00	-1102.	-276.	-32.	-479.	-7314.	119.
153.75	-903.	-208.	11.	-409.	-5958.	140.
142.50	-535.	114.	472.	-280.	-5696.	112.
131.25	712.	817.	1014.	-173.	-5462.	203.
120.00	1756.	1693.	1469.	-19.	-4607.	259.
108.75	1650.	2104.	1884.	294.	-3736.	169.
97.50	1850.	2269.	2356.	589.	-3596.	258.
86.25	3465.	3000.	2830.	660.	-4322.	472.
75.00	4478.	3899.	3078.	676.	-5090.	376.
63.75	3546.	3871.	3123.	796.	-4606.	71.
52.50	3442.	3539.	3263.	747.	-3246.	-73.
41.25	5550.	4237.	3472.	388.	-2775.	-72.
30.00	6408.	5108.	3490.	115.	-2937.	-80.
18.75	4888.	4764.	3367.	124.	-2069.	-160.
7.50	4232.	4065.	3144.	125.	-907.	-264.
356.25	4421.	3851.	2669.	87.	-990.	-231.
345.00	3433.	3387.	2275.	189.	-1360.	-185.
333.75	3813.	3202.	2571.	172.	-1148.	-383.
322.50	7103.	4637.	3410.	-154.	-1602.	-503.
311.25	9089.	6410.	4080.	-358.	-2962.	-250.

RUN 21 POINT 11

VKTS =	89.8	OMEG*R =	610.2	ALFS,C =	8.3	CLR/S,R = 0.07363	CMY/S,R = 0.1446
V/OR =	0.248	RHO100 =	0.2165	CP/S =	0.000894	CDR/S,R = 0.01289	CMX/S,R = -0.0031

UPPER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R COS	.1R SIN	.2R COS	.2R SIN	.3R COS	.3R SIN	.6R COS	.6R SIN
0	-2670.5		0.0		-1152.7		613.1	
1	548.2	-326.5	0.0	0.0	576.9	-502.3	1342.7	-1882.5
2	345.4	-339.1	0.0	0.0	88.2	-114.8	-364.6	-219.5
3	118.7	136.0	0.0	0.0	6.4	51.6	-344.0	135.9
4	489.3	-141.9	0.0	0.0	135.6	-35.2	-502.0	193.1
5	-295.6	321.0	0.0	0.0	-60.7	72.6	174.6	-272.7
6	54.9	-214.3	0.0	0.0	4.8	-77.5	34.3	168.9
7	-3.5	112.2	0.0	0.0	31.4	-0.7	-45.0	-53.8
8	-32.9	-81.3	0.0	0.0	-8.9	7.1	17.9	34.0
9	277.5	28.6	0.0	0.0	8.0	2.0	-210.1	21.7
10	-62.5	-69.1	0.0	0.0	-3.9	8.7	-4.6	37.8

HARMONIC	UPPER ROTOR EDGEWISE BENDING MOMENT .1R COS	SIN	UPPER ROTOR PITCH LINK LOAD COS	SIN	UPPER ROTOR SHAFT STRESS COS	SIN
0	0.0		-397.5		3261.3	
1	0.0	0.0	-82.4	207.7	-1794.8	438.8
2	0.0	0.0	-22.1	-0.4	-542.6	-162.5
3	0.0	0.0	-70.9	-15.7	130.2	24.1
4	0.0	0.0	5.7	-31.9	-99.5	93.0
5	0.0	0.0	22.5	-62.7	-67.9	-279.5
6	0.0	0.0	-12.1	21.1	-22.7	47.6
7	0.0	0.0	-10.2	34.4	-155.1	-141.9
8	0.0	0.0	-26.4	-16.2	21.8	88.5
9	0.0	0.0	-3.4	20.7	31.5	-19.9
10	0.0	0.0	31.3	11.0	-57.2	54.2

RUN 21 POINT 11

VKTS =	89.8	OMEG*R =	610.2	ALFS,C =	8.3	CLR/S,R =0.07363	CMY/S,R = 0.1446
V/OR =	0.248	RHO100 =	0.2165	CP/S =	0.000894	CDR/S,R =0.01289	CMX/S,R =-0.0031

LOWER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R COS	.1R SIN	.2R COS	.2R SIN	.3R COS	.3R SIN	.6R COS	.6R SIN
0	-4748.4		-2841.0		-1770.8		-575.1	
1	-705.3	672.6	-305.9	704.1	-112.1	700.0	116.1	330.2
2	216.0	422.7	147.8	238.7	34.5	142.5	-41.9	12.3
3	86.3	-107.6	49.5	-76.2	36.4	-43.7	22.9	-33.6
4	335.3	-30.3	192.0	-84.9	99.6	-21.1	-61.0	5.7
5	-235.4	-49.3	-145.1	27.6	-73.6	7.9	31.2	1.0
6	37.3	373.7	129.7	183.5	40.3	97.4	-9.4	-39.2
7	227.6	-26.7	104.6	-88.7	49.3	-19.7	-23.2	5.9
8	-29.1	-16.0	-3.6	11.2	8.7	2.2	2.4	1.7
9	172.3	26.7	54.1	-43.9	-4.7	3.0	-16.6	1.1
10	37.8	-26.8	1.3	-12.9	7.3	0.6	-2.5	1.8

HARMONIC	LOWER ROTOR EDGEWISE BENDING MOMENT .1R COS	SIN	LOWER ROTOR PITCH LINK LOAD COS	SIN
0	-5335.3		-153.9	
1	1007.0	-995.7	-111.4	130.4
2	-93.3	-276.8	26.2	6.6
3	-8.4	-36.6	-25.7	-5.6
4	-16.4	48.9	4.7	-1.9
5	17.4	-38.6	-14.8	-5.7
6	-21.0	-22.7	27.8	2.2
7	246.6	-441.5	14.2	-14.8
8	30.7	3.4	6.5	14.1
9	-18.4	11.7	8.2	-11.0
10	-0.3	1.5	-6.4	-26.3

RUN 21 POINT 11

VKTS = 89.8 OMEG*R = 610.2 ALFS,C = 8.3 CLR/S,R =0.07363 CMY/S,R = 0.1446

V/CR = 0.248 RHO100 = 0.2165 CP/S = 0.000894 CDR/S,R =0.01289 CMX/S,R =-0.0031

	UPPER ROTOR BLADE NORMAL BENDING MOMENT				UR EDGEWISE	UR PITCH	UPPER ROTOR
PSI	.1R	.2R	.3R	.6R	BENDING .1R	LINK LOAD	SHAFT STRESS
0.00	-1231.	0.	-375.	712.	0.	-566.	705.
11.25	-1699.	0.	-563.	824.	0.	-535.	871.
22.50	-2131.	0.	-815.	849.	0.	-512.	1303.
33.75	-2440.	0.	-1025.	595.	0.	-420.	1880.
45.00	-3101.	0.	-1220.	682.	0.	-303.	2437.
56.25	-3811.	0.	-1478.	725.	0.	-155.	2665.
67.50	-3765.	0.	-1683.	-48.	0.	-9.	2922.
78.75	-3110.	0.	-1691.	-1152.	0.	-68.	3548.
90.00	-2777.	0.	-1594.	-1752.	0.	-268.	4063.
101.25	-2832.	0.	-1583.	-1897.	0.	-302.	4384.
112.50	-2808.	0.	-1756.	-1717.	0.	-206.	4992.
123.75	-3233.	0.	-2026.	-1016.	0.	-188.	5584.
135.00	-4126.	0.	-2111.	-394.	0.	-215.	5550.
146.25	-3750.	0.	-1851.	-888.	0.	-236.	4999.
157.50	-1986.	0.	-1506.	-1968.	0.	-264.	4292.
168.75	-1388.	0.	-1396.	-2051.	0.	-259.	3951.
180.00	-2521.	0.	-1499.	-1124.	0.	-277.	4417.
191.25	-3368.	0.	-1632.	-396.	0.	-345.	4907.
202.50	-3614.	0.	-1703.	45.	0.	-338.	4469.
213.75	-3993.	0.	-1644.	632.	0.	-358.	3880.
225.00	-3672.	0.	-1432.	882.	0.	-577.	4016.
236.25	-2641.	0.	-1166.	793.	0.	-724.	4144.
247.50	-2411.	0.	-942.	1284.	0.	-598.	3786.
258.75	-2687.	0.	-771.	2185.	0.	-508.	3566.
270.00	-2327.	0.	-637.	2679.	0.	-562.	3549.
281.25	-2125.	0.	-521.	3185.	0.	-547.	3219.
292.50	-2565.	0.	-441.	3977.	0.	-555.	2566.
303.75	-2476.	0.	-427.	4072.	0.	-666.	1890.
315.00	-1871.	0.	-426.	3361.	0.	-623.	1527.
326.25	-1788.	0.	-371.	2832.	0.	-466.	1609.
337.50	-1821.	0.	-304.	2339.	0.	-487.	1585.
348.75	-1387.	0.	-297.	1369.	0.	-583.	1082.

RUN 21 POINT 11

VKTS = 89.8 OMEG*R = 610.2 ALFS,C = 8.3 CLR/S,R =0.07363 CMY/S,R = 0.1446

V/OR = 0.248 RHOICO = 0.2165 CP/S = 0.000894 CDR/S,R =0.01289 CMX/S,R =-0.0031

PSI	LOWER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	LR EDGEWISE BENDING .1R	LR PITCH LINK LOAD
300.00	-6610.	-3967.	-2631.	-773.	-3163.	-328.
288.75	-6726.	-4292.	-2802.	-801.	-3680.	-345.
277.50	-6137.	-4131.	-2730.	-880.	-4472.	-309.
266.25	-5163.	-3570.	-2390.	-968.	-4636.	-337.
255.00	-4227.	-2942.	-2089.	-1009.	-4448.	-301.
243.75	-4289.	-2731.	-2092.	-928.	-4786.	-183.
232.50	-5225.	-3127.	-2248.	-754.	-5626.	-188.
221.25	-5289.	-3453.	-2234.	-674.	-6096.	-240.
210.00	-4022.	-3004.	-1983.	-768.	-5869.	-142.
198.75	-3087.	-2222.	-1664.	-879.	-5657.	-9.
187.50	-3327.	-1976.	-1478.	-870.	-6139.	31.
176.25	-3832.	-2237.	-1503.	-789.	-6899.	34.
165.00	-4038.	-2447.	-1602.	-700.	-6984.	12.
153.75	-4284.	-2499.	-1586.	-583.	-6351.	-21.
142.50	-4561.	-2566.	-1478.	-446.	-6023.	-7.
131.25	-4478.	-2568.	-1381.	-350.	-6500.	-8.
120.00	-4175.	-2395.	-1266.	-304.	-6910.	-40.
108.75	-4072.	-2203.	-1105.	-260.	-6443.	-13.
97.50	-4051.	-2115.	-988.	-224.	-5759.	-4.
86.25	-3898.	-2062.	-977.	-221.	-5905.	-85.
75.00	-3991.	-2078.	-1038.	-213.	-6520.	-102.
63.75	-4463.	-2264.	-1139.	-185.	-6405.	-39.
52.50	-4737.	-2487.	-1269.	-197.	-5511.	-61.
41.25	-4727.	-2606.	-1407.	-260.	-4981.	-136.
30.00	-4848.	-2708.	-1500.	-325.	-5271.	-184.
18.75	-4809.	-2741.	-1517.	-407.	-5488.	-245.
7.50	-4491.	-2615.	-1560.	-516.	-4857.	-259.
356.25	-4842.	-2700.	-1780.	-559.	-3915.	-213.
345.00	-5849.	-3251.	-2106.	-530.	-3665.	-271.
333.75	-6119.	-3706.	-2313.	-568.	-4070.	-365.
322.50	-5686.	-3647.	-2366.	-692.	-4149.	-311.
311.25	-5895.	-3601.	-2441.	-769.	-3551.	-257.

RUN 21 POINT 12
VKTS = 90.0 OMEG*R = 610.3 ALFS,C = 8.3 CLR/S,R =0.07364 CMY/S,R = 0.1446
V/OR = 0.249 RHO100 = 0.2165 CP/S = 0.000871 COR/S,R =0.01288 CMX/S,R =-0.0031

UPPER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R COS	.1R SIN	.2R COS	.2R SIN	.3R COS	.3R SIN	.6R COS	.6R SIN
0	-2655.2		0.0		-1210.6		613.2	
1	476.0	-278.1	0.0	0.0	504.5	-495.1	1144.7	-1918.6
2	427.5	-424.7	0.0	0.0	137.2	-135.7	-328.8	-195.9
3	130.5	101.3	0.0	0.0	14.6	56.5	-270.8	231.9
4	475.9	-316.5	0.0	0.0	136.6	-74.9	-471.8	357.2
5	-109.7	377.2	0.0	0.0	-20.3	83.6	39.0	-295.6
6	-68.2	-195.3	0.0	0.0	-38.6	-61.9	111.8	117.6
7	44.9	68.8	0.0	0.0	27.1	-20.1	-62.2	-9.9
8	-68.0	-27.0	0.0	0.0	3.9	6.1	33.5	4.4
9	210.2	-234.1	0.0	0.0	-4.7	-6.0	-127.1	197.0
10	-93.7	5.3	0.0	0.0	12.3	10.7	21.9	18.7

HARMONIC	UPPER ROTOR EDGEWISE BENDING MOMENT .1R COS	SIN	UPPER ROTOR PITCH LINK LOAD COS	SIN	UPPER ROTOR SHAFT STRESS COS	SIN
0	0.0		-390.2		3276.3	
1	0.0	0.0	-63.9	218.4	-1743.0	664.9
2	0.0	0.0	-23.8	6.3	-547.0	-16.6
3	0.0	0.0	-71.1	3.8	144.4	-5.8
4	0.0	0.0	-9.0	-31.8	-80.0	139.0
5	0.0	0.0	-7.2	-66.1	-183.8	-211.8
6	0.0	0.0	-1.3	25.8	9.2	44.4
7	0.0	0.0	13.4	33.4	-231.1	-31.1
8	0.0	0.0	-25.1	8.4	59.8	68.2
9	0.0	0.0	9.1	14.0	-3.4	-26.0
10	0.0	0.0	24.1	-17.3	21.1	90.6

RUN 21 POINT 12

VKTS =	90.0	OMEG*R =	610.3	ALFS,C =	8.3	CLR/S,R =	0.07364	CMY/S,R =	0.1446
V/CR =	0.249	RHO100 =	0.2165	CP/S =	0.000871	CDR/S,R =	0.01288	CMX/S,R =	-0.0031

LOWER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R COS	.1R SIN	.2R COS	.2R SIN	.3R COS	.3R SIN	.6R COS	.6R SIN
0	-4766.4		-2858.9		-1787.5		-574.2	
1	-699.6	561.8	-326.9	638.5	-144.2	663.6	92.1	342.6
2	144.2	481.0	109.2	274.7	14.9	156.9	-41.3	6.3
3	103.0	-68.6	60.9	-45.1	40.9	-21.5	29.3	-29.0
4	343.2	82.6	217.6	-23.1	102.4	5.7	-67.1	-16.9
5	-175.7	-250.4	-160.3	-91.1	-69.2	-45.0	27.6	27.3
6	-181.9	339.5	7.2	226.9	-12.6	106.8	12.7	-39.9
7	181.2	98.8	127.9	-10.8	51.1	11.2	-17.7	-7.2
8	-27.4	-40.9	-11.0	-2.9	11.5	-1.5	1.7	0.6
9	77.9	183.5	90.2	28.6	2.0	-1.1	-8.5	-18.0
10	13.5	-19.7	1.0	0.9	2.4	11.6	-1.7	-1.8

HARMONIC	LOWER ROTOR EDGEWISE BENDING MOMENT .1R COS	SIN	LOWER ROTOR PITCH LINK LOAD COS	SIN
0	-5410.5		-152.8	
1	1087.4	-874.7	-122.7	119.4
2	-52.3	-279.6	24.3	12.1
3	14.8	-18.6	-23.4	-12.4
4	-32.0	38.5	4.1	-1.2
5	40.2	-17.8	-14.1	-14.6
6	-22.9	-32.6	22.0	16.7
7	469.1	-142.8	16.5	-4.1
8	17.2	28.8	-1.2	12.5
9	-7.2	-13.1	17.0	2.3
10	4.7	-11.7	19.2	-19.7

RUN 21 POINT 12
VKTS = 90.0 OMEG*R = 610.3 ALFS,C = 8.3 CLR/S,R =0.07364 CMY/S,R = 0.1446
V/OR = 0.249 RHO100 = 0.2165 CP/S = 0.000371 CDR/S,R =0.01288 CMX/S,R =-0.0031

PSI	UPPER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	UR EDGEWISE BENDING .1R	UR PITCH LINK LOAD	UPPER ROTOR SHAFT STRESS
0.00	-1230.	0.	-438.	703.	0.	-545.	723.
11.25	-1867.	0.	-671.	942.	0.	-521.	1153.
22.50	-2182.	0.	-926.	783.	0.	-466.	1686.
33.75	-2642.	0.	-1133.	632.	0.	-360.	2297.
45.00	-3527.	0.	-1388.	826.	0.	-227.	2695.
56.25	-3950.	0.	-1662.	481.	0.	-55.	2827.
67.50	-3427.	0.	-1775.	-662.	0.	4.	3254.
78.75	-2835.	0.	-1714.	-1590.	0.	-159.	3882.
90.00	-2818.	0.	-1637.	-1869.	0.	-294.	4237.
101.25	-2843.	0.	-1694.	-1863.	0.	-241.	4678.
112.50	-2901.	0.	-1935.	-1404.	0.	-181.	5382.
123.75	-3660.	0.	-2145.	-482.	0.	-195.	5691.
135.00	-4083.	0.	-2015.	-263.	0.	-206.	5377.
146.25	-2749.	0.	-1641.	-1259.	0.	-234.	4712.
157.50	-1256.	0.	-1399.	-2022.	0.	-263.	4033.
168.75	-1654.	0.	-1383.	-1537.	0.	-263.	4055.
180.00	-2734.	0.	-1480.	-744.	0.	-306.	4756.
191.25	-3138.	0.	-1635.	-306.	0.	-343.	4836.
202.50	-3677.	0.	-1717.	300.	0.	-324.	4119.
213.75	-4094.	0.	-1612.	874.	0.	-436.	3898.
225.00	-3320.	0.	-1425.	822.	0.	-659.	4197.
236.25	-2559.	0.	-1245.	868.	0.	-675.	4042.
247.50	-2832.	0.	-1030.	1624.	0.	-535.	3629.
258.75	-2787.	0.	-833.	2276.	0.	-522.	3481.
270.00	-2208.	0.	-725.	2609.	0.	-553.	3309.
281.25	-2430.	0.	-644.	3373.	0.	-538.	2878.
292.50	-2856.	0.	-581.	4069.	0.	-616.	2235.
303.75	-2358.	0.	-575.	3756.	0.	-669.	1566.
315.00	-1867.	0.	-546.	3090.	0.	-534.	1397.
326.25	-1921.	0.	-444.	2705.	0.	-448.	1631.
337.50	-1567.	0.	-355.	1950.	0.	-539.	1394.
348.75	-996.	0.	-339.	942.	0.	-586.	795.

RUN 21 POINT 12

VKTS =	90.0	OMEG*R =	610.3	ALFS,C =	8.3	CLR/S,R =0.07364	CMY/S,R = 0.1446
V/OR =	0.249	RHO100 =	0.2165	CP/S =	0.000871	CDR/S,R =0.01288	CMX/S,R =-0.0031

PSI	LOWER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	LR EDGEWISE BENDING .1R	LR PITCH LINK LOAD
300.00	-6829.	-4218.	-2733.	-766.	-3505.	-360.
288.75	-6453.	-4271.	-2812.	-848.	-4225.	-322.
277.50	-5578.	-3835.	-2575.	-942.	-4649.	-314.
266.25	-4560.	-3181.	-2184.	-1018.	-4553.	-337.
255.00	-4039.	-2711.	-2033.	-1008.	-4610.	-236.
243.75	-4738.	-2864.	-2183.	-850.	-5280.	-161.
232.50	-5616.	-3425.	-2307.	-678.	-6023.	-225.
221.25	-4911.	-3441.	-2178.	-689.	-6086.	-212.
210.00	-3366.	-2645.	-1865.	-833.	-5748.	-70.
198.75	-3009.	-1993.	-1573.	-904.	-5927.	17.
187.50	-3662.	-2093.	-1489.	-853.	-6707.	37.
176.25	-4030.	-2415.	-1592.	-760.	-7153.	38.
165.00	-4244.	-2527.	-1660.	-644.	-6723.	-8.
153.75	-4659.	-2629.	-1597.	-503.	-6115.	-30.
142.50	-4679.	-2709.	-1493.	-398.	-6261.	-4.
131.25	-4285.	-2534.	-1376.	-347.	-6866.	-16.
120.00	-4195.	-2313.	-1238.	-293.	-6818.	-27.
108.75	-4296.	-2282.	-1134.	-233.	-6067.	-4.
97.50	-4095.	-2232.	-1075.	-218.	-5777.	-45.
86.25	-3969.	-2106.	-1047.	-219.	-6322.	-102.
75.00	-4282.	-2191.	-1098.	-188.	-6635.	-67.
63.75	-4571.	-241[illegible]	-1210.	-177.	-6022.	-43.
52.50	-4612.	-250[illegible]	-1314.	-224.	-5229.	-96.
41.25	-4760.	-2574.	-1422.	-275.	-5155.	-142.
30.00	-4879.	-2744.	-1517.	-335.	-5507.	-207.
18.75	-4621.	-2721.	-1546.	-452.	-5310.	-273.
7.50	-4573.	-2601.	-1627.	-545.	-4409.	-237.
356.25	-5279.	-2902.	-1894.	-537.	-3775.	-222.
345.00	-5905.	-3459.	-2192.	-539.	-4006.	-329.
333.75	-5758.	-3629.	-2330.	-637.	-4343.	-348.
322.50	-5710.	-3540.	-2384.	-725.	-3961.	-258.
311.25	-6364.	-3784.	-2521.	-739.	-3369.	-287.

RUN 21 POINT 13

VKTS =	90.0	OMEG*R = 610.3	ALFS,C = 8.5	CLR/S,R =0.08979	CMY/S,R = 0.1735
V/CR =	0.249	RHO100 = 0.2165	CP/S = 0.001022	CDR/S,R =0.01528	CMX/S,R =-0.0028

UPPER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R COS	.1R SIN	.2R COS	.2R SIN	.3R COS	.3R SIN	.6R COS	.6R SIN
0	-952.5		0.0		-342.0		1390.3	
1	23.6	824.9	0.0	0.0	279.8	26.5	981.6	-1506.6
2	444.6	-264.5	0.0	0.0	121.5	-67.2	-402.2	-149.2
3	115.9	161.5	0.0	0.0	-9.2	64.0	-380.2	190.0
4	515.0	-310.0	0.0	0.0	145.4	-82.5	-505.1	376.5
5	-138.4	340.0	0.0	0.0	-20.3	72.0	69.5	-280.9
6	-19.1	-272.0	0.0	0.0	-18.6	-93.5	98.2	192.0
7	35.2	88.1	0.0	0.0	40.7	-10.1	-75.1	-27.1
8	-49.3	-102.2	0.0	0.0	-9.1	2.2	40.7	57.4
9	350.9	-21.9	0.0	0.0	0.8	-4.5	-219.0	79.3
10	-63.4	-60.5	0.0	0.0	-5.5	11.3	15.3	53.6

HARMONIC	UPPER ROTOR EDGEWISE BENDING MOMENT .1R COS	SIN	UPPER ROTOR PITCH LINK LOAD COS	SIN	UPPER ROTOR SHAFT STRESS COS	SIN
0	0.0		-303.8		3568.5	
1	0.0	0.0	-81.4	242.2	-1810.0	875.4
2	0.0	0.0	-27.3	0.2	-560.5	-109.1
3	0.0	0.0	-81.6	2.8	80.6	-32.7
4	0.0	0.0	-14.9	-38.2	-39.8	95.3
5	0.0	0.0	-4.3	-103.4	-196.1	-237.9
6	0.0	0.0	8.4	20.7	40.1	39.7
7	0.0	0.0	17.9	61.3	-249.2	-129.3
8	0.0	0.0	-39.9	-1.7	-0.8	99.1
9	0.0	0.0	1.6	25.8	-27.6	-61.1
10	0.0	0.0	27.5	-21.5	-54.9	116.6

RUN 21 POINT 13

VKTS = 90.0 OMEG*R = 610.3 ALFS,C = 8.5 CLR/S,R =0.08979 CMY/S,R = 0.1735

V/CR = 0.249 RHO100 = 0.2165 CP/S = 0.001022 CDR/S,R =0.01528 CMX/S,R =-0.0028

LOWER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R COS	.1R SIN	.2R COS	.2R SIN	.3R COS	.3R SIN	.6R COS	.6R SIN
0	-3037.4		-1602.4		-936.2		-459.6	
1	-256.2	-423.9	-69.1	-84.2	47.9	187.4	125.6	275.4
2	268.5	441.2	177.8	246.4	62.0	155.7	-40.3	24.8
3	51.1	-130.0	11.5	-95.8	12.5	-53.5	15.4	-26.2
4	327.8	58.4	202.3	-35.5	95.2	8.6	-62.7	-5.1
5	-282.4	-213.1	-211.9	-38.7	-96.6	-24.0	39.8	22.4
6	-62.4	457.2	101.2	244.8	23.6	123.9	-3.1	-51.7
7	227.0	34.0	118.6	-55.1	46.2	1.3	-24.0	-1.6
8	-58.3	-34.6	-14.6	-4.9	13.2	-5.7	0.6	-2.0
9	99.4	19.9	24.4	-22.5	-5.2	7.9	-12.7	0.8
10	54.1	-13.3	11.6	-20.8	9.0	1.1	-6.0	4.0

HARMONIC	LOWER ROTOR EDGEWISE BENDING MOMENT .1R COS	SIN	LOWER ROTOR PITCH LINK LOAD COS	SIN
0	-5397.3		-132.0	
1	1324.1	-822.9	-120.2	121.8
2	-251.7	-239.5	31.1	12.9
3	-26.7	23.9	-27.9	-6.5
4	-19.3	37.5	1.6	2.3
5	39.0	-20.7	-19.5	-11.5
6	-46.1	-37.9	33.3	5.4
7	511.4	-188.7	14.3	-13.9
8	-2.2	5.6	10.0	5.7
9	-20.4	24.7	14.8	2.6
10	9.4	-1.2	-5.1	-25.1

RUN 21 POINT 13

VKTS = 90.0 OMEG*R = 610.3 ALFS,C = 8.5 CLR/S,R =0.08979 CMY/S,R = 0.1735

V/CR = 0.249 RHO/RHO0 = 0.2165 CP/S = 0.001022 CDR/S,R =0.01528 CMX/S,R =-0.0028

PSI	UPPER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	UR EDGEWISE BENDING .1R	UR PITCH LINK LOAD	UPPER ROTOR SHAFT STRESS
0.00	262.	0.	183.	1014.	0.	-498.	750.
11.25	-311.	0.	60.	1529.	0.	-475.	1236.
22.50	-593.	0.	-76.	1659.	0.	-426.	1895.
33.75	-486.	0.	-142.	1487.	0.	-323.	2463.
45.00	-885.	0.	-194.	1697.	0.	-133.	2994.
56.25	-1415.	0.	-324.	1678.	0.	125.	3312.
67.50	-1004.	0.	-427.	778.	0.	177.	3735.
78.75	-118.	0.	-373.	-263.	0.	-83.	4405.
90.00	45.	0.	-263.	-657.	0.	-267.	4842.
101.25	-213.	0.	-289.	-594.	0.	-159.	5220.
112.50	-204.	0.	-511.	-261.	0.	-25.	5874.
123.75	-635.	0.	-772.	456.	0.	-22.	6184.
135.00	-1390.	0.	-765.	861.	0.	-83.	5846.
146.25	-634.	0.	-423.	49.	0.	-160.	5258.
157.50	1175.	0.	-116.	-1092.	0.	-164.	4589.
168.75	1186.	0.	-151.	-884.	0.	-122.	4418.
180.00	-512.	0.	-400.	260.	0.	-202.	5155.
191.25	-1470.	0.	-639.	844.	0.	-278.	5420.
202.50	-1761.	0.	-792.	1048.	0.	-207.	4399.
213.75	-2358.	0.	-813.	1500.	0.	-299.	3741.
225.00	-2255.	0.	-724.	1600.	0.	-609.	4157.
236.25	-1477.	0.	-623.	1397.	0.	-674.	4228.
247.50	-1601.	0.	-523.	1882.	0.	-479.	3721.
258.75	-2089.	0.	-411.	2702.	0.	-424.	3511.
270.00	-1742.	0.	-343.	3086.	0.	-468.	3365.
281.25	-1645.	0.	-313.	3648.	0.	-461.	2951.
292.50	-2295.	0.	-283.	4458.	0.	-550.	2490.
303.75	-2257.	0.	-295.	4381.	0.	-630.	1872.
315.00	-1538.	0.	-303.	3586.	0.	-491.	1433.
326.25	-1273.	0.	-166.	3031.	0.	-362.	1715.
337.50	-943.	0.	65.	2324.	0.	-436.	1850.
348.75	-48.	0.	203.	1284.	0.	-513.	1161.

RUN 21 POINT 13
VKTS = 90.0 OMEG*R = 610.3 ALFS,C = 8.5 CLR/S,R =0.08979 CMY/S,R = 0.1735
V/OR = 0.249 RHO100 = 0.2165 CP/S = 0.001022 COR/S,R =0.01528 CMX/S,R =-0.0028

PSI	LOWER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	LR EDGEWISE BENDING .1R	LR PITCH LINK LOAD
300.00	-3857.	-1978.	-1317.	-579.	-3235.	-306.
288.75	-3976.	-2333.	-1487.	-613.	-3951.	-319.
277.50	-3273.	-2133.	-1373.	-723.	-4516.	-296.
266.25	-2131.	-1464.	-1023.	-829.	-4385.	-319.
255.00	-1472.	-895.	-811.	-856.	-4383.	-255.
243.75	-2178.	-1026.	-963.	-738.	-5276.	-143.
232.50	-3350.	-1688.	-1204.	-553.	-6292.	-172.
221.25	-3165.	-1948.	-1182.	-513.	-6376.	-206.
210.00	-1810.	-1412.	-937.	-651.	-5982.	-82.
198.75	-1108.	-766.	-705.	-781.	-6250.	38.
187.50	-1690.	-713.	-646.	-777.	-7140.	64.
176.25	-2659.	-1184.	-817.	-677.	-7568.	83.
165.00	-3293.	-1707.	-1082.	-562.	-7044.	48.
153.75	-3640.	-1993.	-1199.	-465.	-6354.	-28.
142.50	-3859.	-2075.	-1131.	-384.	-6449.	-11.
131.25	-3816.	-2052.	-1023.	-320.	-7021.	33.
120.00	-3551.	-1918.	-931.	-280.	-6920.	-0.
108.75	-3485.	-1754.	-829.	-235.	-6027.	-17.
97.50	-3612.	-1706.	-738.	-175.	-5540.	-13.
86.25	-3479.	-1684.	-686.	-138.	-6000.	-70.
75.00	-3277.	-1595.	-672.	-129.	-6368.	-95.
63.75	-3448.	-1601.	-693.	-108.	-5755.	-41.
52.50	-3612.	-1707.	-729.	-104.	-4861.	-32.
41.25	-3403.	-1700.	-751.	-150.	-4797.	-96.
30.00	-3129.	-1584.	-727.	-216.	-5299.	-175.
18.75	-2849.	-1443.	-649.	-299.	-5217.	-242.
7.50	-2579.	-1274.	-634.	-397.	-4370.	-232.
356.25	-2842.	-1300.	-804.	-425.	-3769.	-195.
345.00	-3398.	-1638.	-1027.	-393.	-3978.	-271.
333.75	-3282.	-1821.	-1078.	-449.	-4310.	-349.
322.50	-2837.	-1616.	-1022.	-576.	-3979.	-283.
311.25	-3138.	-1569.	-1091.	-613.	-3301.	-239.

RUN 21 POINT 14

VKTS = 90.1 OMEG*R = 608.3 ALFS,C = 8.8 CLR/S,R =0.11858 CMY/S,R = 0.2227

V/CR = 0.250 RHO/RHO0 = 0.2161 CP/S = 0.002092 CDR/S,R =0.01911 CMX/S,R =-0.0034

UPPER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R COS	.1R SIN	.2R COS	.2R SIN	.3R COS	.3R SIN	.6R COS	.6R SIN
0	1805.5		0.0		1087.9		2465.5	
1	-122.9	3202.3	0.0	0.0	147.2	1153.2	753.7	-580.4
2	230.9	-323.7	0.0	0.0	10.0	-134.8	-798.2	-290.1
3	108.2	202.0	0.0	0.0	-11.6	91.1	-425.4	258.1
4	406.9	-656.2	0.0	0.0	105.2	-205.9	-392.5	669.6
5	-66.3	430.1	0.0	0.0	2.9	88.6	2.3	-367.7
6	29.3	-402.5	0.0	0.0	-20.1	-132.7	114.7	272.4
7	53.3	127.8	0.0	0.0	54.7	-32.1	-114.3	-21.2
8	-36.1	-88.5	0.0	0.0	-12.6	3.2	52.2	64.7
9	213.0	-4.0	0.0	0.0	-3.0	-1.1	-93.6	75.1
10	-92.4	-106.9	0.0	0.0	-7.3	22.7	41.3	87.6

HARMONIC	UPPER ROTOR EDGEWISE BENDING MOMENT .1R COS	SIN	UPPER ROTOR PITCH LINK LOAD COS	SIN	UPPER ROTOR SHAFT STRESS COS	SIN
0	0.0		-183.5		4113.6	
1	0.0	0.0	-108.1	286.6	-1254.0	1105.5
2	0.0	0.0	12.5	-0.2	-665.8	40.0
3	0.0	0.0	-105.7	39.8	40.8	-61.3
4	0.0	0.0	-20.8	-18.9	92.2	89.8
5	0.0	0.0	-56.6	-124.9	-305.3	-304.9
6	0.0	0.0	21.1	-19.6	49.0	75.4
7	0.0	0.0	64.3	117.7	-396.9	-93.0
8	0.0	0.0	-31.7	-36.9	-32.7	78.7
9	0.0	0.0	-7.9	17.9	-33.7	32.9
10	0.0	0.0	-0.1	-13.2	-32.5	187.0

RUN 21 POINT 14

VKTS = 90.1 OMEG*R = 608.3 ALFS,C = 8.8 CLR/S,R =0.11858 CMY/S,R = 0.2227

V/CR = 0.250 RHO100 = 0.2161 CP/S = 0.002092 CDR/S,R =0.01911 CMX/S,R =-0.0034

LOWER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R COS	.1R SIN	.2R COS	.2R SIN	.3R COS	.3R SIN	.6R COS	.6R SIN
0	599.9		1009.3		837.2		-221.5	
1	557.9	-2902.0	352.2	-1869.2	357.2	-970.8	183.4	142.1
2	222.9	251.5	116.0	137.4	12.1	97.1	-73.5	26.7
3	11.5	-103.8	-10.0	-69.6	6.0	-47.9	32.1	-28.0
4	138.2	325.1	152.8	159.1	56.8	105.6	-43.8	-56.4
5	-138.3	-323.0	-165.2	-114.5	-77.2	-38.1	32.4	36.3
6	-8.9	589.8	162.5	309.7	42.1	165.4	-9.1	-63.6
7	269.7	16.5	151.7	-58.9	73.3	8.8	-28.2	-3.7
8	-61.7	-113.9	-45.3	-23.1	12.8	-0.3	2.2	8.0
9	79.6	-196.2	-30.3	-80.2	11.0	4.6	-1.2	18.7
10	28.2	-3.5	13.2	-17.8	14.5	-10.4	-5.9	3.0

HARMONIC	LOWER ROTOR EDGEWISE BENDING MOMENT .1R COS	SIN	LOWER ROTOR PITCH LINK LOAD COS	SIN
0	-5742.1		-92.0	
1	2201.8	-394.8	-141.9	124.1
2	-560.4	-118.2	33.2	18.0
3	-32.3	118.1	-28.9	-0.6
4	-26.0	3.6	4.9	14.0
5	61.1	-47.6	-17.5	-22.6
6	-55.8	-24.7	50.5	-3.3
7	747.7	-14.0	18.8	-27.9
8	-9.4	24.6	-1.8	16.4
9	22.8	4.0	18.1	-16.9
10	12.4	19.7	-2.6	-19.3

RUN 21 POINT 14

VKTS = 90.1 OMEG*R = 608.3 ALFS,C = 8.8 CLR/S,R =0.11858 CMY/S,R = 0.2227

V/CR = 0.250 RHU100 = 0.2161 CP/S = 0.002092 CDR/S,R =0.01911 CMX/S,R =-0.0034

PSI	UPPER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	UR EDGEWISE BENDING .1R	UR PITCH LINK LOAD	UPPER ROTOR SHAFT STRESS
0.00	2529.	0.	1353.	1606.	0.	-416.	1575.
11.25	2324.	0.	1335.	2398.	0.	-363.	2428.
22.50	2523.	0.	1394.	2698.	0.	-283.	3111.
33.75	3003.	0.	1662.	2906.	0.	-140.	3635.
45.00	3416.	0.	1977.	3221.	0.	139.	4179.
56.25	3842.	0.	2077.	3079.	0.	371.	4405.
67.50	4380.	0.	2093.	2524.	0.	240.	4899.
78.75	4996.	0.	2239.	1988.	0.	-126.	5691.
90.00	5307.	0.	2380.	1658.	0.	-247.	5810.
101.25	5046.	0.	2299.	1810.	0.	-5.	5790.
112.50	4564.	0.	1991.	2486.	0.	247.	6449.
123.75	3940.	0.	1661.	3070.	0.	209.	6698.
135.00	3329.	0.	1642.	2800.	0.	-30.	5884.
146.25	3901.	0.	1946.	1462.	0.	-104.	4891.
157.50	5296.	0.	2051.	59.	0.	106.	4289.
168.75	4815.	0.	1631.	113.	0.	220.	4500.
180.00	2159.	0.	973.	1360.	0.	12.	5473.
191.25	89.	0.	407.	2078.	0.	-155.	5562.
202.50	-612.	0.	38.	1969.	0.	-80.	4295.
213.75	-975.	0.	-67.	1840.	0.	-155.	3645.
225.00	-747.	0.	5.	1650.	0.	-515.	4101.
236.25	-216.	0.	51.	1524.	0.	-702.	4255.
247.50	-676.	0.	57.	2164.	0.	-504.	4078.
258.75	-1414.	0.	55.	3174.	0.	-270.	4066.
270.00	-1290.	0.	16.	3877.	0.	-292.	3835.
281.25	-1295.	0.	39.	4618.	0.	-470.	3505.
292.50	-1733.	0.	155.	5178.	0.	-567.	3089.
303.75	-1399.	0.	202.	4792.	0.	-494.	2156.
315.00	-547.	0.	257.	3970.	0.	-371.	1790.
326.25	46.	0.	575.	3272.	0.	-334.	2703.
337.50	991.	0.	1025.	2228.	0.	-374.	2960.
348.75	2186.	0.	1293.	1324.	0.	-416.	1889.

RUN 21 POINT 14

VKTS =	90.1	OMEG*R =	608.3	ALFS,C =	8.8	CLR/S,R =	0.11858	CMY/S,R =	0.2227
V/OR =	0.250	RHO100 =	0.2161	CP/S =	0.002092	CDR/S,R =	0.01911	CMX/S,R =	-0.0034

PSI	LOWER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	LR EDGEWISE BENDING .1R	LR PITCH LINK LOAD
300.00	3059.	2857.	1789.	-272.	-3577.	-255.
288.75	2406.	2362.	1519.	-235.	-4505.	-255.
277.50	3024.	2386.	1669.	-318.	-4846.	-251.
266.25	4037.	2969.	1874.	-435.	-4517.	-295.
255.00	3934.	3245.	1943.	-427.	-4815.	-231.
243.75	2696.	2695.	1633.	-292.	-6269.	-85.
232.50	1539.	1807.	1183.	-191.	-7579.	-101.
221.25	1514.	1434.	1052.	-260.	-7614.	-177.
210.00	2456.	1785.	1207.	-466.	-7186.	-56.
198.75	2876.	2184.	1230.	-646.	-7720.	140.
187.50	1582.	1818.	932.	-658.	-8976.	182.
176.25	-529.	699.	426.	-513.	-9308.	121.
165.00	-1673.	-320.	-56.	-367.	-8182.	71.
153.75	-1789.	-681.	-278.	-314.	-7153.	48.
142.50	-1921.	-724.	-244.	-288.	-7441.	48.
131.25	-2035.	-774.	-165.	-249.	-7957.	54.
120.00	-1886.	-703.	-130.	-221.	-7233.	70.
108.75	-2215.	-679.	-118.	-152.	-5879.	79.
97.50	-2909.	-965.	-133.	-13.	-5433.	14.
86.25	-2689.	-1093.	-108.	66.	-5891.	-82.
75.00	-1810.	-703.	15.	42.	-5891.	-69.
63.75	-1626.	-355.	153.	44.	-4831.	8.
52.50	-1695.	-335.	273.	75.	-3827.	10.
41.25	-904.	-90.	449.	24.	-4105.	-50.
30.00	138.	515.	710.	-67.	-4974.	-142.
18.75	717.	1055.	1040.	-109.	-4796.	-234.
7.50	1313.	1475.	1313.	-130.	-3730.	-215.
356.25	1792.	1777.	1311.	-124.	-3438.	-146.
345.00	1616.	1740.	1170.	-58.	-4212.	-231.
333.75	1705.	1716.	1328.	-52.	-4621.	-359.
322.50	2830.	2271.	1753.	-186.	-3972.	-316.
311.25	3641.	2931.	1948.	-299.	-3269.	-238.

RUN 21	POINT 15				
VKTS =	90.0	OMEG*R = 610.2	ALFS,C = 9.0	CLR/S,R =0.14057	CMY/S,R = 0.2597
V/OR =	0.249	RHO100 = 0.2161	CP/S = 0.003825	COR/S,R =0.02179	CMX/S,R =-0.0059

UPPER ROTOR BLADE NORMAL BENDING MOMENT

	.1R		.2R		.3R		.6R	
HARMONIC	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	3710.8		0.0		1970.8		3296.3	
1	707.7	5582.9	0.0	0.0	481.3	2283.2	1000.3	311.4
2	108.3	-574.9	0.0	0.0	-94.3	-298.5	-1067.1	-497.7
3	-47.7	168.4	0.0	0.0	-78.2	96.1	-393.4	395.3
4	-1.8	-663.6	0.0	0.0	-33.5	-208.4	-0.8	683.1
5	-127.0	295.2	0.0	0.0	-8.8	34.8	55.0	-271.9
6	-63.8	-499.6	0.0	0.0	-65.2	-171.8	211.9	313.5
7	41.6	214.4	0.0	0.0	55.5	-61.1	-85.9	-53.4
8	-178.7	-215.1	0.0	0.0	-12.5	32.5	167.0	98.8
9	282.2	7.7	0.0	0.0	-5.1	5.1	-108.9	58.5
10	-124.7	-138.5	0.0	0.0	-11.7	33.3	63.7	99.3

	UPPER ROTOR EDGEWISE BENDING MOMENT .1R		UPPER ROTOR PITCH LINK LOAD		UPPER ROTOR SHAFT STRESS	
HARMONIC	COS	SIN	COS	SIN	COS	SIN
0	0.0		-70.0		4449.6	
1	0.0	0.0	-147.6	373.2	-974.5	1447.1
2	0.0	0.0	44.8	-36.8	-660.1	219.5
3	0.0	0.0	-89.3	61.7	43.7	-12.3
4	0.0	0.0	-62.5	-17.9	94.1	35.7
5	0.0	0.0	-19.1	-138.7	-339.1	-309.2
6	0.0	0.0	34.4	15.8	24.5	113.7
7	0.0	0.0	60.0	133.0	-423.0	-27.4
8	0.0	0.0	-41.1	-7.6	42.7	205.1
9	0.0	0.0	39.7	-4.6	4.9	109.5
10	0.0	0.0	-6.7	13.7	-39.9	266.8

RUN 21 POINT 15

VKTS =	90.0	OMEG*R =	610.2	ALFS,C =	9.0	CLR/S,R =	0.14057	CMY/S,R =	0.2597
V/OR =	0.249	RHO100 =	0.2161	CP/S =	0.003825	CDR/S,R =	0.02179	CMX/S,R =	-0.0059

LOWER ROTOR BLADE NORMAL BENDING MOMENT

	.1R		.2R		.3R		.6R	
HARMONIC	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	3598.4		3159.5		2292.7		-23.4	
1	282.0	-5208.2	4.1	-3458.0	122.6	-2044.5	143.1	-0.1
2	62.5	162.1	-0.1	98.1	-55.0	56.9	-98.5	8.6
3	-39.6	-188.8	-53.2	-103.7	-17.4	-66.1	30.7	-43.0
4	-80.9	609.9	81.8	382.6	-0.6	210.1	-8.2	-103.2
5	10.3	-27.7	-13.7	6.9	-29.1	36.7	5.6	6.9
6	-75.4	657.6	149.3	368.0	27.0	194.2	-1.3	-71.7
7	224.7	-19.5	114.0	-59.4	60.3	7.8	-22.0	-1.9
8	-131.4	-298.6	-107.0	-64.0	19.2	-8.6	16.7	22.3
9	203.0	-417.6	-55.1	-177.7	18.2	16.5	-6.0	47.8
10	37.3	-76.8	5.1	-40.6	29.5	-8.3	-3.7	0.5

	LOWER ROTOR EDGEWISE BENDING MOMENT .1R		LOWER ROTOR PITCH LINK LOAD	
HARMONIC	COS	SIN	COS	SIN
0	-6061.4		-34.4	
1	3072.0	349.4	-179.2	154.8
2	-542.2	97.5	3.6	20.3
3	-42.2	38.5	-32.1	-38.6
4	1.2	7.2	23.5	9.5
5	-14.6	30.8	1.5	-7.3
6	-82.2	-54.4	42.0	12.8
7	546.4	203.1	16.2	-47.7
8	-8.2	27.4	-6.8	9.8
9	96.6	66.6	30.1	1.6
10	37.5	32.3	-15.8	-3.7

RUN 21 POINT 15

VKTS = 90.0 OMEG*R = 610.2 ALFS,C = 9.0 CLR/S,R =0.14057 CMY/S,R = 0.2597

V/OR = 0.249 RHO100 = 0.2161 CP/S = 0.003825 CDR/S,R =0.02179 CMX/S,R =-0.0059

	UPPER ROTOR BLADE NORMAL BENDING MOMENT				UR EDGEWISE	UR PITCH	UPPER ROTOR
	.1R	.25	.3R	.6R	BENDING .1R	LINK LOAD	SHAFT STRESS
PSI							
0.00	4307.	0.	2198.	3138.	0.	-257.	2223.
11.25	4522.	0.	2369.	3888.	0.	-172.	3504.
22.50	5803.	0.	2747.	3735.	0.	-190.	3870.
33.75	7152.	0.	3412.	3863.	0.	-61.	4363.
45.00	7885.	0.	4041.	4332.	0.	264.	5325.
56.25	8418.	0.	4183.	4417.	0.	503.	5476.
67.50	8927.	0.	4075.	4204.	0.	424.	5641.
78.75	9212.	0.	4188.	4095.	0.	60.	6472.
90.00	9113.	0.	4384.	4010.	0.	-211.	6549.
101.25	8873.	0.	4301.	4004.	0.	23.	6215.
112.50	8776.	0.	3912.	4228.	0.	497.	6752.
123.75	8053.	0.	3483.	4478.	0.	546.	7014.
135.00	6607.	0.	3352.	4138.	0.	256.	6131.
146.25	6522.	0.	3436.	2647.	0.	235.	5105.
157.50	7684.	0.	3133.	955.	0.	405.	4440.
168.75	6436.	0.	2255.	964.	0.	293.	4555.
180.00	2593.	0.	1309.	2204.	0.	55.	5599.
191.25	156.	0.	596.	2391.	0.	44.	5689.
202.50	-255.	0.	66.	1539.	0.	72.	4197.
213.75	-840.	0.	-201.	1173.	0.	-133.	3533.
225.00	-1245.	0.	-244.	1172.	0.	-439.	4217.
236.25	-1030.	0.	-306.	1263.	0.	-594.	4389.
247.50	-1564.	0.	-379.	2186.	0.	-519.	4107.
258.75	-2290.	0.	-333.	3572.	0.	-336.	4142.
270.00	-1893.	0.	-192.	4498.	0.	-281.	3975.
281.25	-1450.	0.	63.	5228.	0.	-432.	3578.
292.50	-1420.	0.	374.	5697.	0.	-565.	2951.
303.75	-534.	0.	565.	5210.	0.	-476.	1902.
315.00	889.	0.	818.	4214.	0.	-275.	1920.
326.25	1955.	0.	1385.	3323.	0.	-228.	3282.
337.50	3166.	0.	1938.	2439.	0.	-354.	3296.
348.75	4218.	0.	2138.	2224.	0.	-393.	1975.

RUN 21 POINT 15

VKTS = 90.0 OMEG*R = 610.2 ALFS,C = 9.0 CLR/S,R =0.14057 CMY/S,R = 0.2597

V/OR = 0.249 RHO100 = 0.2161 CP/S = 0.003825 CDR/S,R =0.02179 CMX/S,R =-0.0059

	LOWER ROTOR BLADE NORMAL BENDING MOMENT				LR EDGEWISE	LR PITCH
	.1R	.2R	.3R	.6R	BENDING .1R	LINK LOAD
PSI						
300.00	8758.	6798.	4328.	-47.	-4666.	-193.
288.75	7806.	6286.	4239.	73.	-5362.	-206.
277.50	8286.	6190.	4191.	48.	-5656.	-252.
266.25	8927.	6577.	4290.	-27.	-5717.	-284.
255.00	8609.	6658.	4358.	14.	-6249.	-176.
243.75	7735.	6176.	4067.	96.	-7560.	-12.
232.50	6818.	5487.	3631.	91.	-8625.	-36.
221.25	6568.	5110.	3498.	-23.	-8611.	-120.
210.00	7162.	5237.	3501.	-231.	-8449.	43.
198.75	6947.	5270.	3222.	-415.	-9236.	272.
187.50	4663.	4372.	2639.	-389.	-10258.	256.
176.25	1944.	2727.	1907.	-211.	-10092.	149.
165.00	808.	1460.	1225.	-144.	-8932.	141.
153.75	579.	1038.	868.	-195.	-8342.	130.
142.50	-76.	817.	804.	-175.	-8702.	104.
131.25	-548.	479.	736.	-127.	-8584.	144.
120.00	-439.	373.	584.	-140.	-7258.	162.
108.75	-1059.	250.	447.	-60.	-5842.	136.
97.50	-2167.	-271.	373.	133.	-5310.	164.
86.25	-1723.	-446.	393.	176.	-5258.	184.
75.00	-544.	101.	442.	85.	-4899.	113.
63.75	-1038.	278.	451.	128.	-3969.	53.
52.50	-1608.	-61.	590.	209.	-3094.	35.
41.25	276.	470.	981.	67.	-3239.	-50.
30.00	2485.	1827.	1478.	-127.	-3929.	-183.
18.75	2831.	2637.	1991.	-112.	-3692.	-234.
7.50	3254.	2960.	2395.	-10.	-2925.	-184.
356.25	4443.	3456.	2445.	57.	-3265.	-150.
345.00	4543.	3694.	2408.	182.	-4266.	-222.
333.75	4704.	3825.	2890.	270.	-4320.	-326.
322.50	7022.	4910.	3736.	126.	-3765.	-320.
311.25	9184.	6417.	4260.	-72.	-3891.	-235.

RUN 21 POINT 16

VKTS =	90.2	OMEG*R =	627.9	ALFS,C =	10.9	CLR/S,R =	0.06855	CMY/S,R =	0.1665
V/OR =	0.242	RHO100 =	0.2161	CP/S =	0.000251	CDR/S,R =	0.01593	CMX/S,R =	-0.0004

UPPER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R COS	.1R SIN	.2R COS	.2R SIN	.3R COS	.3R SIN	.6R COS	.6R SIN
0	-1697.0		0.0		-784.5		903.2	
1	580.6	-1050.0	0.0	0.0	630.0	-664.5	1530.7	-2299.3
2	372.8	-336.0	0.0	0.0	90.8	-97.5	-460.6	-191.1
3	210.3	164.9	0.0	0.0	51.4	46.0	-385.4	134.1
4	793.4	-96.1	0.0	0.0	219.0	-12.5	-794.5	177.3
5	-304.9	246.8	0.0	0.0	-59.3	31.3	171.9	-180.5
6	-12.7	-161.4	0.0	0.0	-16.5	-56.1	52.6	98.2
7	4.4	122.6	0.0	0.0	39.0	-0.2	-44.8	-53.2
8	-114.5	12.9	0.0	0.0	28.6	18.9	63.7	-34.3
9	101.5	250.3	0.0	0.0	7.2	-3.1	-97.8	-148.6
10	-68.6	-27.8	0.0	0.0	8.4	7.7	8.5	8.2

HARMONIC	UPPER ROTOR EDGEWISE BENDING MOMENT .1R COS	SIN	UPPER ROTOR PITCH LINK LOAD COS	SIN	UPPER ROTOR SHAFT STRESS COS	SIN
0	0.0		84.3		3506.5	
1	0.0	0.0	-126.1	249.3	-2476.7	-727.9
2	0.0	0.0	-7.0	-20.7	-596.4	-144.8
3	0.0	0.0	-85.6	-27.7	56.6	-142.8
4	0.0	0.0	7.2	-42.9	-198.1	144.8
5	0.0	0.0	33.9	-129.5	-98.8	-292.1
6	0.0	0.0	33.0	13.2	-4.1	98.9
7	0.0	0.0	-20.8	52.1	-167.4	-254.3
8	0.0	0.0	0.0	-4.0	204.0	26.6
9	0.0	0.0	-5.9	6.9	-2.4	-44.7
10	0.0	0.0	18.2	-0.9	-87.0	16.9

RUN 21 POINT 16
VKTS = 90.2 OMEG*R = 627.9 ALFS,C = 10.9 CLR/S,R =0.06855 CMY/S,R = 0.1665
V/OR = 0.242 RHO100 = 0.2161 CP/S = 0.000251 CDR/S,R =0.01593 CMX/S,R =-0.0004

LOWER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R COS	.1R SIN	.2R COS	.2R SIN	.3R COS	.3R SIN	.6R COS	.6R SIN
0	-6936.1		-4373.6		-2821.3		-717.1	
1	-710.2	449.6	-343.7	519.8	-132.4	559.5	104.9	286.7
2	507.4	514.7	379.0	260.1	216.7	155.1	43.3	-4.6
3	199.9	-50.8	125.4	-57.3	71.4	-34.0	11.8	-51.8
4	276.2	-28.3	161.8	-81.8	86.1	-26.2	-51.1	3.0
5	-330.1	-142.6	-219.2	13.2	-101.5	-3.8	41.7	11.6
6	-0.5	380.6	111.9	199.6	33.7	105.3	-7.1	-36.7
7	174.9	-68.4	65.0	-85.4	40.0	-16.9	-15.2	9.0
8	-138.1	-45.7	-50.7	12.7	12.7	-13.6	11.2	2.3
9	77.8	53.5	37.0	-2.7	-5.1	4.1	-7.1	-3.3
10	-0.5	-10.1	-3.9	11.3	0.2	15.8	0.6	-0.4

HARMONIC	LOWER ROTOR EDGEWISE BENDING MOMENT .1R COS	SIN	LOWER ROTOR PITCH LINK LOAD COS	SIN
0	-5609.3		-187.4	
1	668.0	-1213.0	-84.2	162.9
2	-134.7	-138.9	31.9	16.6
3	-37.4	-116.6	-13.3	18.6
4	-13.3	23.1	1.0	-1.8
5	29.1	-45.5	-32.4	14.2
6	-1.5	-40.6	25.7	3.7
7	52.1	-222.1	-1.4	-22.0
8	26.2	0.7	-1.0	12.1
9	47.8	-7.9	-17.7	-12.5
10	10.8	-18.3	24.8	-5.8

RUN 21 POINT 16
VKTS = 90.2 OMEG*R = 627.9 ALFS,C = 10.9 CLR/S,R =0.06855 CMY/S,R = 0.1665
V/OR = 0.242 RHO100 = 0.2161 CP/S = 0.000251 CDR/S,R =0.01593 CMX/S,R =-0.0004

PSI	UPPER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	UR EDGEWISE BENDING .1R	UR PITCH LINK LOAD	UPPER ROTOR SHAFT STRESS
0.00	-135.	0.	214.	947.	0.	-69.	136.
11.25	-115.	0.	-114.	614.	0.	-138.	-199.
22.50	-1124.	0.	-546.	1023.	0.	-174.	213.
33.75	-2375.	0.	-853.	1327.	0.	-64.	1005.
45.00	-2965.	0.	-1128.	1142.	0.	187.	1579.
56.25	-3406.	0.	-1469.	790.	0.	468.	1597.
67.50	-3679.	0.	-1689.	97.	0.	568.	1744.
78.75	-3015.	0.	-1650.	-1140.	0.	378.	2674.
90.00	-2150.	0.	-1502.	-2137.	0.	150.	3532.
101.25	-2194.	0.	-1494.	-2215.	0.	171.	3699.
112.50	-2619.	0.	-1728.	-1716.	0.	347.	4176.
123.75	-3044.	0.	-2010.	-1068.	0.	447.	5280.
135.00	-3665.	0.	-2028.	-561.	0.	400.	5716.
146.25	-3327.	0.	-1763.	-858.	0.	263.	4973.
157.50	-1539.	0.	-1457.	-1854.	0.	196.	4156.
168.75	-510.	0.	-1238.	-2192.	0.	282.	4378.
180.00	-1318.	0.	-1122.	-1402.	0.	340.	5514.
191.25	-2143.	0.	-1141.	-516.	0.	253.	6254.
202.50	-2255.	0.	-1193.	130.	0.	166.	5878.
213.75	-2597.	0.	-1109.	1054.	0.	89.	5474.
225.00	-2649.	0.	-889.	1819.	0.	-103.	5784.
236.25	-1607.	0.	-613.	1820.	0.	-272.	5798.
247.50	-600.	0.	-280.	1823.	0.	-241.	5197.
258.75	-486.	0.	58.	2508.	0.	-122.	4942.
270.00	-469.	0.	262.	3281.	0.	-55.	4867.
281.25	-313.	0.	270.	3847.	0.	-66.	4227.
292.50	-717.	0.	165.	4631.	0.	-173.	3523.
303.75	-1340.	0.	103.	5186.	0.	-261.	3130.
315.00	-1140.	0.	145.	4646.	0.	-176.	2555.
326.25	-370.	0.	198.	3468.	0.	-37.	1915.
337.50	-127.	0.	223.	2584.	0.	-14.	1534.
348.75	-314.	0.	271.	1825.	0.	-43.	955.

RUN 21 POINT 16

VKTS = 90.2 OMEG*R = 627.9 ALFS,C = 10.9 CLR/S,R =0.06855 CMY/S,R = 0.1665

V/CR = 0.242 RHO100 = 0.2161 CP/S = 0.000251 CDR/S,R =0.01593 CMX/S,R =-0.0004

PSI	LOWER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	LR EDGEWISE BENDING .1R	LR PITCH LINK LOAD
300.00	-8863.	-5578.	-3713.	-907.	-3839.	-359.
288.75	-9071.	-5908.	-3959.	-969.	-3872.	-379.
277.50	-8581.	-5826.	-3866.	-1056.	-4216.	-439.
266.25	-7298.	-5141.	-3420.	-1168.	-4592.	-413.
255.00	-6092.	-4304.	-3078.	-1219.	-4657.	-289.
243.75	-6226.	-4061.	-3083.	-1107.	-4711.	-235.
232.50	-7264.	-4507.	-3186.	-892.	-5142.	-258.
221.25	-7266.	-4810.	-3128.	-775.	-5593.	-268.
210.00	-5884.	-4310.	-2873.	-835.	-5667.	-265.
198.75	-4913.	-3505.	-2529.	-923.	-5717.	-173.
187.50	-5240.	-3264.	-2327.	-908.	-6141.	0.
176.25	-5886.	-3561.	-2387.	-829.	-6700.	28.
165.00	-6213.	-3846.	-2539.	-751.	-6939.	-73.
153.75	-6538.	-4014.	-2599.	-666.	-6814.	-49.
142.50	-6808.	-4160.	-2569.	-587.	-6692.	12.
131.25	-6704.	-4151.	-2498.	-551.	-6826.	-64.
120.00	-6534.	-4026.	-2440.	-537.	-6974.	-84.
108.75	-6659.	-4019.	-2422.	-503.	-6801.	4.
97.50	-6823.	-4079.	-2391.	-467.	-6457.	-29.
86.25	-6810.	-4069.	-2359.	-453.	-6357.	-123.
75.00	-6852.	-4104.	-2416.	-439.	-6542.	-96.
63.75	-7031.	-4224.	-2495.	-424.	-6581.	-67.
52.50	-7087.	-4272.	-2497.	-433.	-6197.	-101.
41.25	-6914.	-4219.	-2490.	-466.	-5807.	-88.
30.00	-6679.	-4129.	-2499.	-507.	-5905.	-91.
18.75	-6538.	-4010.	-2458.	-549.	-6061.	-181.
7.50	-6635.	-3986.	-2477.	-578.	-5568.	-242.
356.25	-7040.	-4214.	-2688.	-585.	-4774.	-264.
345.00	-7503.	-4576.	-2968.	-602.	-4460.	-324.
333.75	-7738.	-4846.	-3167.	-664.	-4497.	-365.
322.50	-7920.	-5010.	-3302.	-756.	-4352.	-362.
311.25	-8344.	-5225.	-3457.	-841.	-4047.	-364.

RUN 21 POINT 17
VKTS = 91.1 OMEG*R = 679.0 ALFS,C = 11.1 CLR/S,R =0.08018 CMY/S,R = 0.1950
V/OR = 0.226 RHO100 = 0.2161 CP/S = 0.000208 CDR/S,R =0.01852 CMX/S,R =-0.0052

UPPER ROTOR BLADE NORMAL BENDING MOMENT

	.1R		.2R		.3R		.6R	
HARMONIC	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-2054.4		0.0		-892.3		702.6	
1	819.6	-1794.7	0.0	0.0	721.2	-1207.6	1258.6	-2460.7
2	498.9	-542.7	0.0	0.0	99.6	-206.8	-681.3	-314.0
3	251.5	78.4	0.0	0.0	8.2	31.8	-621.3	127.5
4	1046.3	-345.2	0.0	0.0	268.8	-93.3	-944.9	382.5
5	-132.7	193.5	0.0	0.0	-1.7	39.5	76.6	-170.4
6	103.6	-279.4	0.0	0.0	2.3	-93.2	8.3	198.8
7	0.8	151.8	0.0	0.0	61.4	10.6	-80.3	-71.6
8	46.8	-163.3	0.0	0.0	-28.7	-1.7	2.4	91.5
9	-179.1	194.1	0.0	0.0	22.1	4.4	76.1	-81.0
10	-42.4	-132.9	0.0	0.0	-10.1	8.6	-48.7	-17.1

	UPPER ROTOR EDGEWISE BENDING MOMENT .1R		UPPER ROTOR PITCH LINK LOAD		UPPER ROTOR SHAFT STRESS	
HARMONIC	COS	SIN	COS	SIN	COS	SIN
0	0.0		81.6		3913.1	
1	0.0	0.0	-113.0	285.5	-5542.4	-3373.3
2	0.0	0.0	-25.2	-23.7	-807.8	-32.5
3	0.0	0.0	-97.2	-53.2	139.7	-43.0
4	0.0	0.0	15.5	-99.1	-80.2	140.3
5	0.0	0.0	66.8	-76.3	-14.5	-266.9
6	0.0	0.0	-4.6	61.8	-34.7	76.1
7	0.0	0.0	-11.8	-9.7	-99.1	-344.4
8	0.0	0.0	-11.0	-38.3	-132.7	-24.2
9	0.0	0.0	-10.6	20.0	1.9	27.8
10	0.0	0.0	23.4	18.9	-158.0	-122.7

RUN 21 POINT 17
VKTS = 91.1 OMEG*R = 679.0 ALFS,C = 11.1 CLR/S,R =0.08018 CMY/S,R = 0.1950
V/OR = 0.226 RHO100 = 0.2161 CP/S = 0.000208 CDR/S,R =0.01852 CMX/S,R =-0.0052

LOWER ROTOR BLADE NORMAL BENDING MOMENT

	.1R		.2R		.3R		.6R	
HARMONIC	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-4521.6		-2576.1		-1539.2		-555.1	
1	-3184.0	-1110.7	-2186.7	-372.8	-1357.8	-54.3	-75.2	209.3
2	880.3	-22.6	536.4	-180.9	311.0	-152.6	16.3	-91.1
3	191.9	-84.5	107.0	-88.0	51.8	-44.0	-8.8	-41.3
4	571.4	110.4	347.1	-70.2	162.2	-6.3	-88.4	-15.6
5	-239.0	-173.6	-167.3	-20.9	-72.4	-13.6	32.5	15.1
6	71.8	419.4	160.6	182.4	44.9	98.6	-11.8	-36.6
7	220.7	-65.5	80.3	-97.2	42.3	-18.5	-17.1	10.8
8	-234.6	55.9	-55.9	81.2	23.4	-27.8	24.6	-9.0
9	16.9	91.1	42.9	18.7	4.7	6.2	-1.9	-7.5
10	-0.1	-59.5	-25.6	-38.7	-20.3	-23.5	-0.9	3.6

	LOWER ROTOR EDGEWISE BENDING MOMENT .1R		LOWER ROTOR PITCH LINK LOAD	
HARMONIC	COS	SIN	COS	SIN
0	-6579.2		-174.9	
1	1661.1	-1317.3	-106.5	190.7
2	-103.2	167.4	37.8	-0.1
3	71.6	-137.3	-30.0	23.0
4	-30.7	15.8	2.7	-5.2
5	22.9	-75.0	-35.5	17.9
6	-26.7	-18.2	35.0	-6.7
7	2.8	6.5	-11.3	-29.2
8	56.9	11.1	15.0	14.0
9	-8.9	-23.6	28.8	-7.1
10	-15.9	-14.6	-25.0	5.0

RUN 21 POINT 17

VKTS = 91.1 OMEG*R = 679.0 ALFS,C = 11.1 CLR/S,R =0.08018 CMY/S,R = 0.1950

V/CR = 0.226 RHUIOO = 0.2161 CP/S = 0.000208 CDR/S,R =0.01852 CMX/S,R =-0.0052

PSI	UPPER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	UR EDGEWISE BENDING .1R	UR PITCH LINK LOAD	UPPER ROTOR SHAFT STRESS
0.00	359.	0.	251.	-252.	0.	-86.	-2815.
11.25	-626.	0.	-280.	-134.	0.	-166.	-3385.
22.50	-2007.	0.	-900.	482.	0.	-192.	-2823.
33.75	-3670.	0.	-1345.	908.	0.	-54.	-2612.
45.00	-4401.	0.	-1594.	856.	0.	153.	-2411.
56.25	-4255.	0.	-1807.	400.	0.	385.	-1773.
67.50	-4327.	0.	-1967.	-419.	0.	639.	-1110.
78.75	-4065.	0.	-1984.	-1449.	0.	669.	-6.
90.00	-3159.	0.	-1950.	-2286.	0.	385.	1476.
101.25	-3169.	0.	-1997.	-2436.	0.	144.	2399.
112.50	-4097.	0.	-2187.	-1771.	0.	180.	3388.
123.75	-4394.	0.	-2468.	-910.	0.	338.	5104.
135.00	-4348.	0.	-2513.	-628.	0.	435.	6204.
146.25	-4146.	0.	-2055.	-1090.	0.	394.	6296.
157.50	-2480.	0.	-1463.	-1944.	0.	272.	6605.
168.75	-583.	0.	-1272.	-2413.	0.	229.	7271.
180.00	-1161.	0.	-1372.	-1671.	0.	246.	8214.
191.25	-2961.	0.	-1381.	-193.	0.	198.	9739.
202.50	-3241.	0.	-1298.	638.	0.	144.	10560.
213.75	-2655.	0.	-1212.	846.	0.	59.	9928.
225.00	-2499.	0.	-995.	1384.	0.	-177.	9669.
236.25	-1971.	0.	-600.	1891.	0.	-319.	10287.
247.50	-778.	0.	-162.	1822.	0.	-166.	10026.
258.75	39.	0.	207.	2104.	0.	-68.	8856.
270.00	116.	0.	462.	3250.	0.	-200.	7926.
281.25	-131.	0.	578.	4348.	0.	-239.	6973.
292.50	-441.	0.	557.	4982.	0.	-158.	5619.
303.75	-781.	0.	439.	5355.	0.	-188.	3953.
315.00	-968.	0.	343.	4988.	0.	-192.	1979.
326.25	-481.	0.	390.	3566.	0.	-52.	575.
337.50	561.	0.	511.	1811.	0.	22.	101.
348.75	979.	0.	511.	448.	0.	-26.	-995.

RUN 21 POINT 17

VKTS = 91.1 OMEG*R = 679.0 ALFS,C = 11.1 CLR/S,R =0.08018 CMY/S,R = 0.1950

V/OR = 0.226 RHO100 = 0.2161 CP/S = 0.000208 CDR/S,R =0.01852 CMX/S,R =-0.0052

PSI	LOWER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	LR EDGEWISE BENDING .1R	LR PITCH LINK LOAD
300.00	-5960.	-3722.	-2301.	-663.	-4962.	-367.
288.75	-5503.	-3543.	-2327.	-754.	-5115.	-405.
277.50	-4907.	-3152.	-2009.	-819.	-5109.	-396.
266.25	-3624.	-2517.	-1536.	-900.	-5343.	-428.
255.00	-2090.	-1606.	-1187.	-962.	-5829.	-408.
243.75	-2013.	-1087.	-1060.	-855.	-6158.	-239.
232.50	-3138.	-1464.	-1073.	-611.	-6332.	-187.
221.25	-2844.	-1704.	-899.	-493.	-6664.	-343.
210.00	-691.	-808.	-400.	-586.	-7167.	-331.
198.75	746.	366.	79.	-680.	-7690.	-90.
187.50	348.	693.	289.	-628.	-8209.	42.
176.25	-575.	373.	293.	-502.	-8707.	46.
165.00	-1296.	-99.	72.	-386.	-9068.	70.
153.75	-2120.	-634.	-275.	-291.	-9152.	36.
142.50	-2981.	-1120.	-466.	-226.	-8992.	-24.
131.25	-3625.	-1521.	-589.	-217.	-8811.	18.
120.00	-4076.	-1927.	-903.	-270.	-8664.	32.
108.75	-4587.	-2292.	-1250.	-341.	-8379.	-35.
97.50	-5492.	-2725.	-1489.	-373.	-7998.	-25.
86.25	-6556.	-3381.	-1817.	-378.	-7704.	-1.
75.00	-7153.	-3990.	-2246.	-409.	-7396.	-87.
63.75	-7527.	-4365.	-2580.	-453.	-6950.	-118.
52.50	-8214.	-4762.	-2809.	-468.	-6524.	-33.
41.25	-8534.	-5104.	-2927.	-499.	-6223.	-30.
30.00	-7744.	-4955.	-2849.	-597.	-5960.	-136.
18.75	-6627.	-4391.	-2652.	-701.	-5679.	-212.
7.50	-6210.	-3890.	-2449.	-720.	-5324.	-243.
356.25	-6335.	-3721.	-2326.	-663.	-4923.	-277.
345.00	-6411.	-3841.	-2400.	-604.	-4693.	-330.
333.75	-6348.	-3950.	-2522.	-573.	-4662.	-386.
322.50	-6329.	-3849.	-2407.	-561.	-4641.	-377.
311.25	-6275.	-3745.	-2237.	-584.	-4709.	-336.

RUN 21 POINT 18
VKTS = 90.1 OMEG*R = 608.8 ALFS,C = 5.8 CLR/S,R =0.07404 CMY/S,R = 0.1118
V/OR = 0.250 RHO100 = 0.2161 CP/S = 0.001662 CDR/S,R =0.00893 CMX/S,R =-0.0033

UPPER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R COS	.1R SIN	.2R COS	.2R SIN	.3R COS	.3R SIN	.6R COS	.6R SIN
0	-2468.8		0.0		-1117.8		654.3	
1	33.4	276.8	0.0	0.0	278.9	-224.2	1034.9	-1606.7
2	365.4	-379.3	0.0	0.0	112.4	-126.8	-285.3	-206.4
3	39.7	145.2	0.0	0.0	1.2	65.7	-340.9	130.5
4	365.5	-227.7	0.0	0.0	108.8	-56.6	-376.3	259.4
5	-277.6	289.1	0.0	0.0	-60.1	61.9	167.8	-252.1
6	53.8	-213.1	0.0	0.0	16.9	-84.1	51.7	165.3
7	41.5	75.8	0.0	0.0	34.6	0.6	-63.1	-14.7
8	-67.9	-29.1	0.0	0.0	9.4	7.6	31.8	13.0
9	84.1	0.3	0.0	0.0	8.0	-3.2	-51.5	28.6
10	-7.3	-69.5	0.0	0.0	-14.3	7.4	-1.7	52.2

HARMONIC	UPPER ROTOR EDGEWISE BENDING MOMENT .1R COS	SIN	UPPER ROTOR PITCH LINK LOAD COS	SIN	UPPER ROTOR SHAFT STRESS COS	SIN
0	0.0		175.8		3574.6	
1	0.0	0.0	-71.7	211.9	-1793.0	137.2
2	0.0	0.0	-30.8	12.3	-510.6	-54.0
3	0.0	0.0	-73.2	-2.7	48.7	-38.8
4	0.0	0.0	-7.6	-35.8	-102.6	81.9
5	0.0	0.0	13.7	-61.7	-58.7	-237.8
6	0.0	0.0	-2.0	39.2	3.3	29.3
7	0.0	0.0	7.9	58.8	-117.3	-99.9
8	0.0	0.0	-16.5	6.5	70.9	7.6
9	0.0	0.0	4.6	17.0	-40.0	-42.3
10	0.0	0.0	29.8	-3.2	-75.8	62.7

RUN 21 POINT 18
VKTS = 90.1 OMEG*R = 608.8 ALFS,C = 5.8 CLR/S,R =0.07404 CMY/S,R = 0.1118
V/OR = 0.250 RHO100 = 0.2161 CP/S = 0.001662 CDR/S,R =0.00893 CMX/S,R =-0.0033

LOWER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R COS	.1R SIN	.2R COS	.2R SIN	.3R COS	.3R SIN	.6R COS	.6R SIN
0	-5008.6		-2981.0		-1886.1		-580.6	
1	-273.2	-355.8	-84.2	-61.2	37.4	177.4	128.2	247.4
2	205.2	441.2	145.4	253.5	46.4	163.1	-24.1	25.5
3	87.3	-118.5	39.6	-77.5	31.4	-41.4	23.6	-22.8
4	156.2	41.0	106.9	-11.2	50.0	2.3	-36.4	-11.0
5	-351.1	-76.4	-210.1	39.3	-103.3	3.6	40.0	3.5
6	50.7	459.2	167.0	223.6	55.6	118.9	-11.5	-49.8
7	216.0	12.8	105.7	-68.0	35.7	-19.6	-21.2	-0.6
8	-51.3	16.5	-3.4	16.3	13.5	-2.4	1.4	-2.1
9	47.1	-4.8	7.1	-11.8	-5.4	7.5	-6.5	-0.0
10	28.9	-1.3	10.4	-9.4	6.4	-1.8	-1.4	3.6

HARMONIC	LOWER ROTOR EDGEWISE BENDING MOMENT .1R COS	SIN	LOWER ROTOR PITCH LINK LOAD COS	SIN
0	-4960.0		-131.8	
1	948.8	-656.4	-101.2	118.0
2	-204.9	-228.4	28.5	9.0
3	15.0	-7.5	-24.3	1.1
4	-12.9	6.1	2.1	-0.6
5	6.6	-39.3	-23.9	-2.5
6	-48.6	-37.3	35.7	0.5
7	352.0	-424.0	10.8	-13.9
8	-6.3	16.8	10.4	-0.3
9	-31.5	-18.0	20.6	1.0
10	0.1	9.8	-9.4	-9.5

RUN 21 POINT 18
VKTS = 90.1 OMEG*R = 608.8 ALFS,C = 5.8 CLR/S,R =0.07404 CMY/S,R = 0.1118
V/CR = 0.250 RHO100 = 0.2161 CP/S = 0.001662 CDR/S,R =0.00893 CMX/S,R =-0.0033

	UPPER ROTOR BLADE NORMAL BENDING MOMENT				UR EDGEWISE	UR PITCH	UPPER ROTOR
PSI	.1R	.2R	.3R	.6R	BENDING .1R	LINK LOAD	SHAFT STRESS
0.00	-1788.	0.	-622.	822.	0.	30.	999.
11.25	-2051.	0.	-789.	848.	0.	89.	1093.
22.50	-2181.	0.	-985.	701.	0.	80.	1519.
33.75	-2422.	0.	-1086.	600.	0.	144.	2054.
45.00	-2852.	0.	-1142.	679.	0.	299.	2634.
56.25	-3063.	0.	-1321.	510.	0.	509.	2921.
67.50	-2984.	0.	-1521.	-35.	0.	615.	3124.
78.75	-2723.	0.	-1506.	-729.	0.	464.	3655.
90.00	-2238.	0.	-1346.	-1401.	0.	266.	4122.
101.25	-1826.	0.	-1287.	-1663.	0.	280.	4357.
112.50	-1950.	0.	-1393.	-1201.	0.	370.	4862.
123.75	-2524.	0.	-1569.	-463.	0.	375.	5431.
135.00	-2871.	0.	-1609.	-224.	0.	359.	5419.
146.25	-2287.	0.	-1367.	-727.	0.	334.	4923.
157.50	-1097.	0.	-1047.	-1418.	0.	297.	4419.
168.75	-748.	0.	-978.	-1432.	0.	296.	4365.
180.00	-1730.	0.	-1147.	-673.	0.	267.	4920.
191.25	-2840.	0.	-1365.	77.	0.	209.	5288.
202.50	-3364.	0.	-1536.	454.	0.	227.	4909.
213.75	-3614.	0.	-1546.	713.	0.	185.	4634.
225.00	-3424.	0.	-1363.	803.	0.	-25.	4621.
236.25	-2779.	0.	-1177.	756.	0.	-123.	4639.
247.50	-2553.	0.	-1084.	1101.	0.	1.	4216.
258.75	-2852.	0.	-982.	1841.	0.	72.	4230.
270.00	-2928.	0.	-883.	2491.	0.	43.	4130.
281.25	-2884.	0.	-852.	3076.	0.	28.	3532.
292.50	-3018.	0.	-821.	3574.	0.	-52.	3053.
303.75	-2876.	0.	-769.	3513.	0.	-107.	2671.
315.00	-2462.	0.	-754.	2992.	0.	35.	2118.
326.25	-2253.	0.	-723.	2461.	0.	132.	1903.
337.50	-2058.	0.	-630.	1804.	0.	-1.	1929.
348.75	-1758.	0.	-569.	1087.	0.	-75.	1497.

RUN 21 POINT 18
VKTS = 90.1 UMEG*R = 608.8 ALFS,C = 5.8 CLR/S,R =0.07404 CMY/S,R = 0.1118
V/OR = 0.250 RHO100 = 0.2161 CP/S = 0.001662 CDR/S,R =0.00893 CMX/S,R =-0.0033

	LOWER ROTOR BLADE NORMAL BENDING MOMENT				LR EDGEWISE	LR PITCH
PSI	.1R	.2R	.3R	.6R	BENDING .1R	LINK LOAD
300.00	-5597.	-3190.	-2202.	-743.	-3128.	-274.
288.75	-6095.	-3653.	-2418.	-729.	-3720.	-308.
277.50	-5640.	-3668.	-2382.	-788.	-4411.	-300.
266.25	-4418.	-3059.	-2051.	-884.	-4347.	-303.
255.00	-3508.	-2348.	-1743.	-931.	-4095.	-248.
243.75	-3858.	-2264.	-1770.	-852.	-4559.	-147.
232.50	-4860.	-2805.	-2002.	-701.	-5481.	-158.
221.25	-5029.	-3183.	-2092.	-649.	-5910.	-215.
210.00	-4135.	-2893.	-1943.	-751.	-5606.	-137.
198.75	-3412.	-2331.	-1719.	-863.	-5389.	-7.
187.50	-3733.	-2181.	-1631.	-866.	-5961.	42.
176.25	-4662.	-2592.	-1786.	-785.	-6710.	60.
165.00	-5340.	-3126.	-2052.	-683.	-6510.	52.
153.75	-5578.	-3371.	-2154.	-593.	-5624.	-19.
142.50	-5672.	-3371.	-2045.	-525.	-5407.	-45.
131.25	-5629.	-3317.	-1916.	-476.	-6049.	9.
120.00	-5382.	-3200.	-1853.	-434.	-6271.	18.
108.75	-5273.	-3059.	-1787.	-389.	-5530.	-25.
97.50	-5446.	-3047.	-1712.	-335.	-4886.	-38.
86.25	-5505.	-3100.	-1673.	-293.	-5210.	-54.
75.00	-5348.	-3055.	-1662.	-277.	-5809.	-88.
63.75	-5309.	-2984.	-1658.	-270.	-5589.	-72.
52.50	-5379.	-2996.	-1661.	-268.	-4746.	-33.
41.25	-5300.	-3015.	-1671.	-294.	-4394.	-64.
30.00	-5046.	-2943.	-1658.	-355.	-4834.	-160.
18.75	-4724.	-2769.	-1611.	-431.	-5136.	-225.
7.50	-4637.	-2631.	-1622.	-485.	-4569.	-205.
356.25	-5099.	-2792.	-1791.	-481.	-3686.	-185.
345.00	-5623.	-3192.	-2013.	-462.	-3519.	-257.
333.75	-5399.	-3329.	-2075.	-536.	-4023.	-326.
322.50	-4792.	-3049.	-1996.	-685.	-4128.	-277.
311.25	-4649.	-2877.	-2004.	-765.	-3486.	-229.

RUN 21 POINT 19

VKTS = 108.5 OMEG*R = 609.8 ALFS,C = 5.5 CLR/S,R =0.06938 CMY/S,R = 0.1072

V/CR = 0.300 RHOIGO = 0.2150 CP/S = 0.001245 COR/S,R =0.00890 CMX/S,R =-0.0025

UPPER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R COS	.1R SIN	.2R COS	.2R SIN	.3R COS	.3R SIN	.6R COS	.6R SIN
0	-3064.5		0.0		-1437.8		364.6	
1	829.0	1720.3	0.0	0.0	696.2	412.7	1506.9	-1390.8
2	200.0	-810.9	0.0	0.0	60.6	-289.2	-183.1	-214.4
3	127.6	97.2	0.0	0.0	35.3	46.1	-96.1	231.4
4	403.2	-204.9	0.0	0.0	127.1	-34.9	-355.3	246.1
5	-429.1	359.4	0.0	0.0	-110.8	61.2	304.6	-256.8
6	-129.9	-238.5	0.0	0.0	-40.4	-78.6	142.5	131.0
7	43.6	143.4	0.0	0.0	20.0	-9.9	-8.4	-42.1
8	-158.4	134.0	0.0	0.0	39.5	-2.5	121.4	-78.0
9	-96.4	-88.9	0.0	0.0	0.2	11.3	108.1	57.0
10	-83.6	12.4	0.0	0.0	0.5	8.6	73.0	13.6

HARMONIC	UPPER ROTOR EDGEWISE BENDING MOMENT .1R COS	SIN	UPPER ROTOR PITCH LINK LOAD COS	SIN	UPPER ROTOR SHAFT STRESS COS	SIN
0	0.0		176.9		3568.2	
1	0.0	0.0	-39.7	224.9	-959.5	473.0
2	0.0	0.0	-31.2	44.7	-394.1	-101.7
3	0.0	0.0	-59.2	13.7	-3.6	-121.0
4	0.0	0.0	-18.3	-26.6	-189.6	255.2
5	0.0	0.0	27.8	-77.2	-44.0	-267.7
6	0.0	0.0	15.7	25.6	31.1	35.7
7	0.0	0.0	31.5	74.2	-250.9	-77.3
8	0.0	0.0	26.9	56.8	156.6	-102.3
9	0.0	0.0	30.2	6.3	34.7	-9.7
10	0.0	0.0	20.0	-20.5	-36.8	95.4

RUN 21 POINT 19
VKTS = 108.5 OMEG*R = 609.8 ALFS,C = 5.5 CLR/S,R =0.06938 CMY/S,R = 0.1072
V/OR = 0.300 RHO100 = 0.2150 CP/S = 0.001245 CDR/S,R =0.00890 CMX/S,R =-0.0025

LOWER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R COS	.1R SIN	.2R COS	.2R SIN	.3R COS	.3R SIN	.6R COS	.6R SIN
0	-5406.9		-3302.9		-2134.6		-636.9	
1	-210.0	-1411.3	-81.1	-773.2	86.0	-249.8	139.6	239.5
2	-19.6	743.1	28.6	470.0	-37.1	265.6	-40.0	12.3
3	70.2	-40.4	45.9	-31.9	37.6	-6.0	34.4	-24.7
4	236.7	139.1	181.6	22.0	96.5	26.1	-50.9	-20.2
5	-257.1	-157.1	-176.0	-25.4	-76.4	-22.8	31.9	14.0
6	-185.6	406.6	12.5	255.6	-17.8	119.4	10.7	-43.5
7	237.6	81.4	118.4	-62.0	39.1	-27.6	-21.9	-6.1
8	-47.3	-68.6	-26.2	-20.6	8.7	-1.7	2.1	-0.1
9	8.1	170.6	53.5	47.1	-1.5	2.4	-3.0	-16.1
10	12.5	22.4	19.9	22.9	1.9	23.8	2.3	-6.0

HARMONIC	LOWER ROTOR EDGEWISE BENDING MOMENT .1R COS	SIN	LOWER ROTOR PITCH LINK LOAD COS	SIN
0	-5046.3		-147.7	
1	300.8	-757.5	-117.0	110.4
2	-142.8	-244.2	38.6	15.9
3	-9.8	8.5	-23.7	3.3
4	-39.9	29.8	-1.1	8.9
5	34.9	-46.6	-20.3	-10.4
6	-43.3	-31.7	21.0	18.2
7	25.3	-404.2	23.3	-16.9
8	-16.4	10.4	0.7	10.2
9	-37.9	3.2	12.6	2.5
10	16.9	-14.0	31.1	10.0

RUN 21 POINT 19
VKTS = 108.5 OMEG*R = 609.8 ALFS,C = 5.5 CLR/S,R =0.06938 CMY/S,R = 0.1072
V/CR = 0.300 RHO100 = 0.2150 CP/S = 0.001245 CDR/S,R =0.00890 CMX/S,R =-0.0025

PSI	UPPER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	UR EDGEWISE BENDING .1R	UR PITCH LINK LOAD	UPPER ROTOR SHAFT STRESS
0.00	-2359.	0.	-610.	1978.	0.	181.	1912.
11.25	-1693.	0.	-697.	1321.	0.	187.	1949.
22.50	-1373.	0.	-778.	692.	0.	67.	2403.
33.75	-2088.	0.	-774.	910.	0.	153.	3196.
45.00	-2557.	0.	-871.	930.	0.	434.	3561.
56.25	-2357.	0.	-1167.	288.	0.	665.	3297.
67.50	-2292.	0.	-1335.	-248.	0.	624.	3518.
78.75	-2063.	0.	-1132.	-776.	0.	376.	4267.
90.00	-1056.	0.	-843.	-1682.	0.	247.	4329.
101.25	-239.	0.	-845.	-2116.	0.	314.	4143.
112.50	-846.	0.	-1120.	-1436.	0.	360.	4901.
123.75	-2326.	0.	-1425.	-490.	0.	351.	5702.
135.00	-2961.	0.	-1587.	-384.	0.	361.	5240.
146.25	-2220.	0.	-1588.	-1163.	0.	324.	4110.
157.50	-1517.	0.	-1537.	-1956.	0.	246.	3463.
168.75	-2048.	0.	-1601.	-2063.	0.	212.	3677.
180.00	-3308.	0.	-1891.	-1652.	0.	199.	4359.
191.25	-4592.	0.	-2323.	-1084.	0.	200.	4563.
202.50	-5766.	0.	-2637.	-414.	0.	214.	4153.
213.75	-6255.	0.	-2684.	51.	0.	139.	4058.
225.00	-5815.	0.	-2583.	89.	0.	8.	4184.
236.25	-5348.	0.	-2447.	202.	0.	-40.	3681.
247.50	-5197.	0.	-2224.	668.	0.	-48.	3115.
258.75	-4847.	0.	-1941.	1199.	0.	-19.	3285.
270.00	-4556.	0.	-1741.	1878.	0.	115.	3541.
281.25	-4637.	0.	-1636.	2717.	0.	107.	3394.
292.50	-4459.	0.	-1514.	3115.	0.	-146.	3211.
303.75	-3844.	0.	-1316.	3001.	0.	-185.	2983.
315.00	-3171.	0.	-1060.	2730.	0.	86.	2673.
326.25	-2357.	0.	-820.	2129.	0.	112.	2591.
337.50	-1799.	0.	-674.	1524.	0.	-115.	2529.
348.75	-2116.	0.	-609.	1709.	0.	-65.	2194.

RUN 21 POINT 19

VKTS =	108.5	UMEG*R =	609.8	ALFS,C =	5.5	CLR/S,R =	0.06938	CMY/S,R =	0.1072
V/OR =	0.300	RHO100 =	0.2150	CP/S =	0.001245	CDR/S,R =	0.00890	CMX/S,R =	-0.0025

PSI	LOWER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	LR EDGEWISE BENDING .1R	LR PITCH LINK LOAD
300.00	-5305.	-3210.	-2164.	-763.	-3339.	-304.
288.75	-5215.	-3258.	-2194.	-789.	-3456.	-295.
277.50	-4491.	-3010.	-2003.	-856.	-4179.	-357.
266.25	-3114.	-2265.	-1611.	-959.	-4586.	-324.
255.00	-2458.	-1626.	-1445.	-973.	-4455.	-189.
243.75	-3517.	-1906.	-1665.	-839.	-4556.	-176.
232.50	-4729.	-2704.	-1942.	-704.	-5183.	-233.
221.25	-4331.	-2931.	-2028.	-732.	-5694.	-186.
210.00	-3315.	-2477.	-1929.	-877.	-5667.	-85.
198.75	-3479.	-2197.	-1803.	-971.	-5483.	17.
187.50	-4588.	-2580.	-1921.	-945.	-5700.	89.
176.25	-5524.	-3277.	-2306.	-865.	-6281.	38.
165.00	-6202.	-3809.	-2606.	-777.	-6489.	-34.
153.75	-6843.	-4135.	-2663.	-668.	-5929.	8.
142.50	-7122.	-4343.	-2653.	-571.	-5413.	20.
131.25	-7006.	-4363.	-2643.	-519.	-5731.	-46.
120.00	-6951.	-4275.	-2581.	-470.	-6226.	-32.
108.75	-6931.	-4221.	-2480.	-414.	-5981.	-9.
97.50	-6649.	-4053.	-2324.	-396.	-5425.	-87.
86.25	-6433.	-3791.	-2176.	-381.	-5406.	-121.
75.00	-6560.	-3786.	-2183.	-326.	-5775.	-92.
63.75	-6545.	-3922.	-2243.	-306.	-5820.	-108.
52.50	-6204.	-3778.	-2167.	-345.	-5323.	-91.
41.25	-5972.	-3521.	-2047.	-370.	-4776.	-66.
30.00	-5717.	-3412.	-1978.	-410.	-4774.	-174.
18.75	-5194.	-3213.	-1894.	-512.	-5113.	-252.
7.50	-5134.	-3019.	-1893.	-562.	-4957.	-185.
356.25	-5813.	-3249.	-2066.	-511.	-4174.	-215.
345.00	-6084.	-3581.	-2213.	-508.	-3651.	-346.
333.75	-5478.	-3472.	-2202.	-611.	-3876.	-331.
322.50	-5003.	-3184.	-2151.	-706.	-4185.	-264.
311.25	-5116.	-3125.	-2132.	-743.	-3877.	-296.

RUN 23 POINT 7
VKTS = 105.0 OMEG*R = 592.1 ALFS,C = 0.2 CLR/S,R =0.02499 CMY/S,R = 0.0246
V/CR = 0.299 RHO100 = 0.2281 CP/S = 0.002093 CDR/S,R =0.00209 CMX/S,R =-0.0006

UPPER ROTOR BLADE NORMAL BENDING MOMENT

	.1R		.2R		.3R		.6R	
HARMONIC	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-6121.8		-2441.1		-2861.7		-3123.7	
1	185.6	-521.7	336.0	-679.4	359.8	-628.4	1188.4	-1981.8
2	-29.8	-826.2	23.6	-495.6	-5.4	-280.3	-93.1	-65.0
3	164.9	-34.8	82.6	23.0	39.9	38.8	3.4	376.2
4	316.9	-84.2	208.5	12.2	106.2	7.6	-289.6	170.6
5	-117.5	147.0	-73.6	73.3	-31.5	28.9	53.6	-77.3
6	-102.9	-31.8	-50.9	-53.9	-28.6	-38.8	81.1	-0.3
7	62.6	-2.3	16.5	23.8	-2.2	7.3	-7.7	-35.7
8	38.2	34.4	8.4	14.5	-1.1	-14.0	-6.6	-15.9
9	16.0	89.4	-17.4	41.3	-4.1	-2.2	-2.8	-64.9
10	4.3	-25.8	2.3	-1.7	-4.3	11.3	11.3	-16.4

	UPPER ROTOR EDGEWISE BENDING MOMENT .1R		UPPER ROTOR PITCH LINK LOAD		UPPER ROTOR SHAFT STRESS	
HARMONIC	COS	SIN	COS	SIN	COS	SIN
0	0.0		-157.7		1927.5	
1	0.0	0.0	-35.4	190.3	-1944.7	-135.5
2	0.0	0.0	-28.7	41.0	-290.4	-217.7
3	0.0	0.0	-27.7	9.9	171.3	-330.4
4	0.0	0.0	-1.1	-11.5	-244.4	264.4
5	0.0	0.0	-12.3	-18.3	-89.0	-29.3
6	0.0	0.0	1.8	0.7	5.3	16.3
7	0.0	0.0	7.6	3.0	36.9	6.1
8	0.0	0.0	-5.9	10.1	-64.6	-7.5
9	0.0	0.0	8.6	7.2	10.2	-61.3
10	0.0	0.0	20.5	-16.7	0.3	84.4

RUN 23 POINT 7

VKTS =	105.0	OMEG*R =	592.1	ALFS,C =	0.2	CLR/S,R =	0.02499	CMY/S,R =	0.0246
V/OR =	0.299	RHO100 =	0.2281	CP/S =	0.002093	CDR/S,R =	0.00209	CMX/S,R =	-0.0006

LOWER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R COS	.1R SIN	.2R COS	.2R SIN	.3R COS	.3R SIN	.6R COS	.6R SIN
0	-10792.9		-7252.4		-4844.8		-953.9	
1	-603.0	165.4	-309.5	311.4	-105.5	410.0	88.5	291.6
2	112.5	1102.1	195.1	696.4	101.7	430.3	33.0	56.7
3	189.4	54.2	152.8	5.5	107.7	19.2	43.2	-29.5
4	257.4	-86.6	148.8	-117.1	101.0	-58.7	-42.5	3.3
5	-180.1	17.9	-80.5	38.6	-43.3	2.5	18.0	-11.1
6	-225.6	308.3	-18.0	229.7	-26.5	115.2	13.2	-35.9
7	140.2	76.8	87.2	3.9	25.5	15.2	-9.7	-6.1
8	4.9	10.1	5.1	-1.3	0.7	-3.0	0.3	-4.0
9	107.2	86.2	70.7	0.9	13.9	7.4	-10.0	-7.0
10	-45.2	-33.9	-28.1	10.1	-4.6	8.5	6.9	1.0

HARMONIC	LOWER ROTOR EDGEWISE BENDING MOMENT .1R COS	SIN	LOWER ROTOR PITCH LINK LOAD COS	SIN
0	-4009.4		-239.9	
1	-70.5	-614.9	-65.5	115.3
2	24.3	-292.9	32.3	6.1
3	-39.5	-36.0	-1.1	25.9
4	-52.5	24.7	3.3	-2.1
5	-1.4	-28.6	-17.2	7.7
6	-19.4	-42.0	12.3	20.7
7	-96.2	60.0	11.1	-8.4
8	-19.2	7.8	-2.2	-1.8
9	6.3	9.4	8.9	-21.5
10	-10.2	-5.3	8.8	4.8

RUN 23 POINT 7
VKTS = 105.0 OMEG*R = 592.1 ALFS,C = 0.2 CLR/S,R =0.02499 CMY/S,R = 0.0246
V/OR = 0.299 RHO100 = 0.2281 CP/S = 0.002093 CDR/S,R =0.00209 CMX/S,R =-0.0006

PSI	UPPER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	UR EDGEWISE BENDING .1R	UR PITCH LINK LOAD	UPPER ROTOR SHAFT STRESS
0.00	-5583.	-1905.	-2433.	-2186.	0.	-230.	-482.
11.25	-6011.	-2141.	-2645.	-2467.	0.	-217.	-420.
22.50	-6708.	-2580.	-2876.	-2495.	0.	-148.	-254.
33.75	-7250.	-3051.	-3134.	-2662.	0.	-33.	2.
45.00	-7500.	-3358.	-3399.	-3230.	0.	33.	201.
56.25	-7660.	-3554.	-3609.	-3900.	0.	87.	359.
67.50	-7543.	-3596.	-3645.	-4604.	0.	107.	807.
78.75	-6790.	-3292.	-3510.	-5415.	0.	40.	1413.
90.00	-5886.	-2811.	-3366.	-5884.	0.	8.	2001.
101.25	-5704.	-2614.	-3302.	-5683.	0.	43.	2902.
112.50	-6094.	-2766.	-3311.	-5204.	0.	12.	3745.
123.75	-6280.	-2932.	-3386.	-4847.	0.	-46.	3715.
135.00	-6166.	-2932.	-3427.	-4653.	0.	-43.	3301.
146.25	-6002.	-2799.	-3318.	-4703.	0.	-61.	3249.
157.50	-5777.	-2572.	-3155.	-4944.	0.	-101.	3103.
168.75	-5748.	-2433.	-3101.	-4990.	0.	-93.	2820.
180.00	-6207.	-2593.	-3157.	-4656.	0.	-112.	3149.
191.25	-6710.	-2879.	-3239.	-4180.	0.	-162.	3775.
202.50	-6860.	-2967.	-3258.	-3730.	0.	-168.	3944.
213.75	-6937.	-2895.	-3157.	-3210.	0.	-217.	3876.
225.00	-6941.	-2811.	-2999.	-2613.	0.	-311.	3714.
236.25	-6501.	-2601.	-2841.	-2118.	0.	-289.	3205.
247.50	-5883.	-2204.	-2598.	-1778.	0.	-233.	2663.
258.75	-5557.	-1827.	-2283.	-1414.	0.	-291.	2290.
270.00	-5390.	-1587.	-2070.	-955.	0.	-325.	1805.
281.25	-5266.	-1448.	-1995.	-565.	0.	-291.	1480.
292.50	-5315.	-1436.	-1967.	-357.	0.	-349.	1590.
303.75	-5293.	-1500.	-1993.	-411.	0.	-405.	1586.
315.00	-4994.	-1464.	-2051.	-866.	0.	-329.	1213.
326.25	-4844.	-1377.	-2056.	-1501.	0.	-291.	811.
337.50	-5101.	-1475.	-2075.	-1825.	0.	-335.	338.
348.75	-5395.	-1715.	-2219.	-1915.	0.	-297.	-222.

RUN 23 POINT 7
VKTS = 105.0 OMEG*R = 592.1 ALFS,C = 0.2 CLR/S,R =0.02499 CMY/S,R = 0.0246
V/OR = 0.299 RHO100 = 0.2281 CP/S = 0.002093 CDR/S,R =0.00209 CMX/S,R =-0.0006

PSI	LOWER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	LR EDGEWISE BENDING .1R	LR PITCH LINK LOAD
300.00	-13063.	-8740.	-5933.	-1223.	-3331.	-380.
288.75	-12697.	-8806.	-5903.	-1260.	-3187.	-428.
277.50	-11397.	-8186.	-5541.	-1330.	-3223.	-416.
266.25	-10144.	-7307.	-5037.	-1361.	-3540.	-353.
255.00	-9456.	-6695.	-4720.	-1319.	-3814.	-299.
243.75	-9519.	-6547.	-4705.	-1215.	-3800.	-286.
232.50	-10072.	-6797.	-4810.	-1077.	-3683.	-304.
221.25	-10054.	-6961.	-4802.	-1007.	-3692.	-326.
210.00	-9298.	-6637.	-4638.	-1062.	-3808.	-293.
198.75	-9168.	-6324.	-4510.	-1123.	-3918.	-184.
187.50	-9949.	-6581.	-4572.	-1100.	-3930.	-112.
176.25	-10416.	-6970.	-4714.	-1065.	-3865.	-134.
165.00	-10466.	-7057.	-4788.	-1042.	-3905.	-130.
153.75	-10870.	-7182.	-4833.	-965.	-4085.	-74.
142.50	-11323.	-7443.	-4879.	-864.	-4160.	-91.
131.25	-11399.	-7522.	-4871.	-799.	-4085.	-142.
120.00	-11438.	-7511.	-4835.	-740.	-4141.	-121.
108.75	-11283.	-7507.	-4777.	-699.	-4411.	-121.
97.50	-10623.	-7218.	-4595.	-722.	-4661.	-191.
86.25	-10154.	-6779.	-4357.	-739.	-4745.	-199.
75.00	-10333.	-6681.	-4277.	-689.	-4736.	-157.
63.75	-10545.	-6836.	-4348.	-635.	-4752.	-188.
52.50	-10465.	-6892.	-4409.	-618.	-4804.	-216.
41.25	-10367.	-6879.	-4414.	-626.	-4756.	-172.
30.00	-10231.	-6830.	-4369.	-681.	-4555.	-170.
18.75	-10089.	-6691.	-4319.	-773.	-4399.	-227.
7.50	-10440.	-6739.	-4447.	-818.	-4368.	-244.
356.25	-11377.	-7238.	-4811.	-810.	-4198.	-263.
345.00	-12147.	-7878.	-5179.	-848.	-3762.	-349.
333.75	-12166.	-8166.	-5380.	-978.	-3359.	-403.
322.50	-11985.	-8154.	-5523.	-1129.	-3268.	-366.
311.25	-12439.	-8324.	-5735.	-1208.	-3357.	-339.

RUN 23 POINT 6

VKTS = 105.8	OMEG*R = 593.2	ALFS,C = 0.6	CLR/S,R =0.08253	CMY/S,R = 0.0536
V/CP = 0.301	RHO100 = 0.2263	CP/S = 0.003972	CDR/S,R =0.00167	CMX/S,R =-0.0035

UPPER ROTOR BLADE NORMAL BENDING MOMENT

	.1R		.2R		.3R		.6R	
HARMONIC	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-1536.9		807.2		-526.6		-1101.8	
1	-94.7	1724.4	64.1	806.3	193.5	350.5	992.4	-1428.9
2	-625.0	-758.5	-428.9	-514.6	-347.4	-310.0	-982.2	-357.1
3	-203.6	187.5	-1[illegible]6.5	110.2	-87.6	100.6	120.0	91.7
4	-32.3	-206.5	35.0	-117.3	14.3	-56.0	-28.7	168.9
5	-393.8	234.0	-198.3	81.8	-59.6	41.3	239.7	-208.1
6	-216.9	-416.3	-53.8	-280.4	-54.6	-127.3	200.4	209.5
7	248.0	74.2	114.0	28.4	13.9	-34.2	-132.8	5.7
8	61.6	168.2	-1.8	59.6	2.6	-26.5	-50.3	-106.3
9	67.5	109.3	14.3	39.6	12.7	-20.3	-15.0	-100.8
10	-7.2	-37.8	-7.5	-8.6	-11.6	5.3	46.9	-0.0

	UPPER ROTOR EDGEWISE BENDING MOMENT .1R		UPPER ROTOR PITCH LINK LOAD		UPPER ROTOR SHAFT STRESS	
HARMONIC	COS	SIN	COS	SIN	COS	SIN
0	0.0		-142.4		4090.8	
1	0.0	0.0	23.7	203.3	-2245.6	1769.3
2	0.0	0.0	-23.8	54.8	-355.5	-478.2
3	0.0	0.0	-11.7	50.2	451.9	61.2
4	0.0	0.0	-32.8	7.5	-58.3	311.1
5	0.0	0.0	22.5	-48.8	25.6	-423.1
6	0.0	0.0	33.6	19.6	-72.5	5.8
7	0.0	0.0	39.2	-4.1	-113.1	-247.9
8	0.0	0.0	20.3	8.7	61.3	-116.4
9	0.0	0.0	-38.3	-20.3	24.5	-42.1
10	0.0	0.0	-6.0	32.4	-7.3	-9.7

RUN 23 POINT 8
VKTS = 105.8 OMEG*R = 593.2 ALFS,C = 0.6 CLR/S,R =0.08253 CMY/S,R = 0.0536
V/OR = 0.301 RHOICO = 0.2263 CP/S = 0.003972 CDR/S,R =0.00167 CMX/S,R =-0.0035

LOWER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R COS	.1R SIN	.2R COS	.2R SIN	.3R COS	.3R SIN	.6R COS	.6R SIN
0	-2439.2		-1245.6		-668.4		-371.2	
1	-190.9	-614.7	-14.6	-168.0	93.8	174.1	139.8	350.0
2	-793.6	338.6	-595.9	297.6	-512.9	155.1	-240.8	40.6
3	-63.7	-411.2	-73.4	-230.4	7.6	-119.6	61.9	58.8
4	110.6	1.8	79.5	-39.0	55.2	-13.2	-27.3	-1.8
5	-471.1	-325.5	-319.0	-57.9	-136.0	-43.6	62.6	31.0
6	-100.8	444.1	74.0	252.1	5.1	125.3	9.3	-47.5
7	253.7	127.0	156.2	-5.8	44.7	12.3	-25.3	-11.1
8	-27.7	-86.1	-40.3	4.5	-20.7	29.3	1.6	6.9
9	-251.1	73.4	-53.7	89.0	4.8	-4.6	21.1	-9.8
10	-53.1	50.6	-7.4	39.9	-15.7	5.5	11.9	-9.5

HARMONIC	LOWER ROTOR EDGEWISE BENDING MOMENT .1R COS	SIN	LOWER ROTOR PITCH LINK LOAD COS	SIN
0	-3924.5		-146.6	
1	1427.5	-99.5	-159.0	61.2
2	399.9	-658.1	32.6	25.0
3	113.9	106.4	-3.0	-17.0
4	-45.3	22.7	-1.9	6.2
5	70.8	-11.4	-3.2	1.4
6	-29.6	-73.5	33.5	4.2
7	838.3	800.8	8.9	1.7
8	-15.8	-78.4	2.9	18.1
9	-21.8	-41.5	-0.8	2.3
10	-15.1	-8.7	4.0	6.9

RUN 23 POINT 8
VKTS = 105.8 OMEG*R = 593.2 ALFS,C = 0.6 CLR/S,R =0.08253 CMY/S,R = 0.0536
V/OR = 0.301 RHO100 = 0.2263 CP/S = 0.003972 CDR/S,R =0.00167 CMX/S,R =-0.0035

PSI	UPPER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	UR EDGEWISE BENDING .1R	UR PITCH LINK LOAD	UPPER ROTOR SHAFT STRESS
0.00	-2733.	188.	-850.	-711.	0.	-116.	1802.
11.25	-2536.	126.	-962.	-1212.	0.	-45.	1517.
22.50	-2163.	314.	-694.	-1462.	0.	-68.	2253.
33.75	-1119.	892.	-300.	-1817.	0.	-8.	3250.
45.00	-33.	1513.	-156.	-2221.	0.	191.	3468.
56.25	-118.	1564.	-247.	-1836.	0.	267.	3368.
67.50	-846.	1228.	-241.	-1086.	0.	138.	3950.
78.75	-414.	1373.	-15.	-1363.	0.	-15.	5086.
90.00	1148.	2120.	209.	-2281.	0.	-71.	6020.
101.25	1869.	2581.	244.	-2334.	0.	-32.	6732.
112.50	1015.	2232.	94.	-1633.	0.	13.	7665.
123.75	-133.	1542.	-159.	-1329.	0.	12.	8522.
135.00	-430.	1224.	-321.	-1773.	0.	36.	8431.
146.25	70.	1461.	-266.	-2712.	0.	24.	7266.
157.50	471.	1747.	-243.	-3607.	0.	-159.	5944.
168.75	-269.	1416.	-536.	-3718.	0.	-294.	5361.
180.00	-1980.	513.	-996.	-3120.	0.	-186.	5515.
191.25	-3275.	-264.	-1341.	-2590.	0.	-134.	5710.
202.50	-3622.	-563.	-1500.	-2250.	0.	-255.	5384.
213.75	-3683.	-585.	-1465.	-1750.	0.	-267.	4655.
225.00	-3613.	-457.	-1275.	-1159.	0.	-234.	3966.
236.25	-3244.	-201.	-1093.	-563.	0.	-346.	3494.
247.50	-2979.	32.	-934.	175.	0.	-347.	3222.
258.75	-2854.	237.	-674.	903.	0.	-193.	3140.
270.00	-2464.	541.	-401.	1389.	0.	-247.	3038.
281.25	-2210.	792.	-272.	1699.	0.	-395.	2654.
292.50	-2450.	784.	-240.	1815.	0.	-310.	2060.
303.75	-2378.	710.	-274.	1473.	0.	-227.	1447.
315.00	-1696.	802.	-401.	660.	0.	-349.	977.
326.25	-1506.	876.	-488.	-117.	0.	-408.	1055.
337.50	-2213.	697.	-475.	-364.	0.	-314.	1757.
348.75	-2791.	394.	-577.	-363.	0.	-218.	2197.

RUN 23 POINT 8

VKTS = 105.8 CMEG*R = 593.2 ALFS,C = 0.6 CLR/S,R =0.08253 CMY/S,R = 0.0536

V/OR = 0.301 RHO100 = 0.2263 CP/S = 0.003972 CDR/S,R =0.00167 CMX/S,R =-0.0035

PSI	LOWER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	LR EDGEWISE BENDING .1R	LR PITCH LINK LOAD
300.00	-2080.	-1012.	-793.	-547.	-3007.	-284.
288.75	-2897.	-1412.	-842.	-374.	-4432.	-287.
277.50	-2214.	-1361.	-594.	-382.	-3949.	-307.
266.25	-172.	-403.	-235.	-560.	-3169.	-278.
255.00	271.	302.	-104.	-604.	-4252.	-194.
243.75	-1396.	-226.	-311.	-486.	-6140.	-109.
232.50	-2527.	-1171.	-724.	-458.	-6302.	-55.
221.25	-2099.	-1446.	-1023.	-600.	-4842.	-41.
210.00	-1482.	-1154.	-967.	-800.	-4288.	-25.
198.75	-1496.	-936.	-807.	-943.	-5582.	41.
187.50	-2001.	-1115.	-951.	-952.	-6594.	96.
176.25	-2929.	-1618.	-1272.	-822.	-5467.	61.
165.00	-3927.	-2140.	-1399.	-619.	-3618.	1.
153.75	-4263.	-2389.	-1316.	-406.	-3543.	-13.
142.50	-3776.	-2243.	-1123.	-237.	-4905.	-23.
131.25	-3089.	-1796.	-785.	-127.	-5221.	-40.
120.00	-2582.	-1289.	-372.	-25.	-3925.	-32.
108.75	-2102.	-869.	-59.	66.	-3200.	-37.
97.50	-1846.	-602.	93.	114.	-4369.	-94.
86.25	-2121.	-613.	122.	166.	-5681.	-150.
75.00	-2305.	-753.	87.	198.	-5063.	-156.
63.75	-2039.	-710.	-3.	125.	-3409.	-130.
52.50	-2299.	-785.	-237.	33.	-3035.	-138.
41.25	-3218.	-1327.	-564.	3.	-3930.	-218.
30.00	-3473.	-1756.	-758.	-93.	-4006.	-289.
18.75	-3217.	-1685.	-829.	-262.	-2546.	-256.
7.50	-3663.	-1773.	-997.	-337.	-1201.	-208.
356.25	-4033.	-2149.	-1193.	-381.	-1477.	-260.
345.00	-3227.	-2032.	-1162.	-535.	-2631.	-332.
333.75	-2257.	-1440.	-920.	-675.	-2748.	-331.
322.50	-1695.	-1046.	-694.	-698.	-1649.	-308.
311.25	-1701.	-910.	-658.	-665.	-1404.	-300.

RUN 23 POINT 9

VKTS = 105.6 OMEG*R = 597.3 ALFS,C = 5.8 CLR/S,R =0.11436 CMY/S,R = 0.1579

V/CR = 0.299 RHO/O0 = 0.2251 CP/S = 0.004235 CDR/S,R =0.01082 CMX/S,R =-0.0040

UPPER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R COS	.1R SIN	.2R COS	.2R SIN	.3R COS	.3R SIN	.6R COS	.6R SIN
0	1618.4		2997.9		978.5		-64.5	
1	107.6	2018.8	241.6	1013.0	359.0	418.0	1114.1	-1655.7
2	-1223.6	-1145.0	-861.0	-830.3	-668.5	-513.2	-1863.2	-776.8
3	-155.4	185.7	-99.5	87.5	-62.0	61.3	-171.0	-15.0
4	116.6	-490.9	147.2	-254.6	51.0	-120.3	-111.5	439.7
5	-283.1	269.3	-146.5	93.7	-36.0	22.3	190.4	-149.2
6	-113.3	-652.8	32.6	-413.8	-35.0	-192.6	200.3	359.2
7	260.8	91.1	154.0	17.9	26.5	-62.2	-173.0	60.4
8	-166.1	64.1	-71.8	-0.6	12.6	-11.4	72.1	-45.6
9	115.5	-146.9	85.9	-41.5	6.4	-12.5	-47.2	65.8
10	-106.8	58.7	-39.7	19.5	23.4	5.9	75.9	-10.4

HARMONIC	UPPER ROTOR EDGEWISE BENDING MOMENT .1R COS	SIN	UPPER ROTOR PITCH LINK LOAD COS	SIN	UPPER ROTOR SHAFT STRESS COS	SIN
0	0.0		-108.6		4814.6	
1	0.0	0.0	-79.5	282.9	-2011.0	1467.4
2	0.0	0.0	99.5	14.6	-480.7	-612.3
3	0.0	0.0	-120.5	33.6	172.2	96.1
4	0.0	0.0	57.4	0.1	36.9	641.2
5	0.0	0.0	-95.3	-60.4	-57.0	-418.0
6	0.0	0.0	3.0	7.5	16.4	6.9
7	0.0	0.0	13.3	-5.9	-133.7	-346.0
8	0.0	0.0	-2.4	12.6	82.1	-89.0
9	0.0	0.0	-10.2	-25.7	14.6	-35.1
10	0.0	0.0	34.1	-22.8	-48.1	39.9

RUN 23 POINT 9
VKTS = 105.6 OMEG*R = 597.3 ALFS,C = 5.8 CLR/S,R =0.11436 CMY/S,R = 0.1579
V/OR = 0.299 RHO100 = 0.2251 CP/S = 0.004235 CDR/S,R =0.01082 CMX/S,R =-0.0040

LOWER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R COS	.1R SIN	.2R COS	.2R SIN	.3R COS	.3R SIN	.6R COS	.6R SIN
0	1359.6		1432.3		1152.6		-135.4	
1	56.6	-1138.3	168.8	-495.9	236.5	-8.0	189.1	372.7
2	-1686.7	453.5	-1209.6	490.1	-984.9	287.8	-391.6	74.0
3	-118.8	-339.5	-110.4	-164.7	-29.5	-77.9	48.9	41.4
4	-51.8	637.0	129.2	359.4	47.7	175.1	-25.8	-115.5
5	-234.4	-2.8	-124.9	68.1	-66.2	43.0	29.8	-6.3
6	-48.7	747.9	183.1	399.7	34.4	216.9	-4.9	-75.0
7	359.0	174.6	228.9	-24.8	81.7	2.9	-32.6	-11.9
8	-118.5	-217.5	-92.9	-23.2	1.1	26.4	13.1	13.8
9	-154.9	-30.2	-61.1	28.1	-7.2	-13.9	22.4	1.3
10	-68.8	116.3	16.6	54.8	-1.3	-2.1	5.3	-13.6

HARMONIC	LOWER ROTOR EDGEWISE BENDING MOMENT .1R COS	SIN	LOWER ROTOR PITCH LINK LOAD COS	SIN
0	-4836.6		-89.0	
1	2771.2	739.5	-192.8	134.0
2	1131.0	-1373.8	-38.4	47.9
3	204.5	172.8	-20.7	-46.0
4	-13.8	31.9	-2.6	-14.2
5	35.5	78.1	30.7	-3.7
6	-136.7	-140.4	72.4	29.0
7	1361.8	610.1	9.1	6.5
8	-45.2	-45.9	-10.8	29.4
9	1.3	-32.7	-22.5	18.0
10	-27.8	24.9	12.4	-20.1

RUN 23 POINT 9
VKTS = 105.6 OMEG*R = 597.3 ALFS,C = 5.8 CLR/S,R =0.11436 CMY/S,R = 0.1579
V/OR = 0.299 RHO100 = 0.2251 CP/S = 0.004235 CDR/S,R =0.01082 CMX/S,R =-0.0040

PSI	UPPER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	UR EDGEWISE BENDING .1R	UR PITCH LINK LOAD	UPPER ROTOR SHAFT STRESS
0.00	171.	2440.	656.	-778.	0.	-209.	2406.
11.25	-189.	1859.	255.	-807.	0.	-218.	2323.
22.50	356.	1915.	387.	-1198.	0.	-25.	3085.
33.75	1551.	2714.	958.	-1551.	0.	167.	4081.
45.00	2755.	3566.	1330.	-1467.	0.	167.	4314.
56.25	3276.	3867.	1382.	-798.	0.	174.	3922.
67.50	3362.	3913.	1505.	3.	0.	163.	4208.
78.75	3845.	4260.	1823.	161.	0.	2.	5516.
90.00	4677.	4901.	2151.	-281.	0.	-21.	6710.
101.25	5795.	5435.	2258.	-546.	0.	146.	7407.
112.50	5448.	5276.	1973.	-231.	0.	116.	8275.
123.75	3559.	4221.	1500.	179.	0.	-39.	9016.
135.00	2317.	3332.	1267.	-411.	0.	1.	8648.
146.25	3401.	3654.	1241.	-2247.	0.	78.	7298.
157.50	4362.	4172.	1052.	-3691.	0.	83.	6035.
168.75	2657.	3412.	616.	-3451.	0.	227.	5756.
180.00	80.	1970.	68.	-2604.	0.	375.	6436.
191.25	-1216.	1084.	-436.	-2247.	0.	250.	6866.
202.50	-1813.	720.	-632.	-1797.	0.	-35.	6115.
213.75	-1887.	689.	-429.	-1066.	0.	-318.	4926.
225.00	-950.	1198.	-79.	-588.	0.	-535.	4247.
236.25	-118.	1839.	249.	67.	0.	-543.	3889.
247.50	-18.	2156.	590.	1294.	0.	-400.	3697.
258.75	414.	2477.	941.	2419.	0.	-341.	3893.
270.00	1148.	2982.	1293.	3248.	0.	-359.	4182.
281.25	1281.	3307.	1596.	4088.	0.	-400.	4224.
292.50	1184.	3348.	1654.	4439.	0.	-480.	4020.
303.75	1275.	3233.	1447.	3921.	0.	-456.	3300.
315.00	1221.	3021.	1243.	2942.	0.	-307.	2230.
326.25	1229.	2933.	1193.	1609.	0.	-256.	1874.
337.50	1395.	3056.	1198.	88.	0.	-271.	2425.
348.75	1019.	2982.	1064.	-764.	0.	-211.	2740.

RUN 23 POINT 9
VKTS = 105.6 OMEG*R = 597.3 ALFS,C = 5.8 CLR/S,R =0.11436 CMY/S,R = 0.1579
V/OR = 0.299 RHO100 = 0.2251 CP/S = 0.004235 CDR/S,R =0.01082 CMX/S,R =-0.0040

PSI	LOWER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	LR EDGEWISE BENDING .1R	LR PITCH LINK LOAD
300.00	3918.	2966.	1738.	-425.	-3439.	-252.
288.75	2582.	2531.	1687.	-164.	-6102.	-232.
277.50	2726.	2239.	1846.	-33.	-6478.	-311.
266.25	4619.	3029.	2151.	-141.	-5684.	-315.
255.00	4841.	3621.	2210.	-183.	-6713.	-131.
243.75	2899.	2859.	1843.	-99.	-9179.	5.
232.50	1691.	1736.	1279.	-166.	-9955.	-15.
221.25	2109.	1425.	902.	-444.	-8250.	-4.
210.00	2674.	1681.	837.	-749.	-6762.	57.
198.75	2263.	1722.	789.	-938.	-7533.	79.
187.50	713.	1083.	417.	-922.	-8795.	122.
176.25	-1030.	-6.	-144.	-716.	-7547.	127.
165.00	-1721.	-702.	-407.	-474.	-4512.	12.
153.75	-1487.	-644.	-170.	-279.	-3461.	-22.
142.50	-870.	-220.	315.	-100.	-5220.	95.
131.25	296.	436.	811.	48.	-6379.	120.
120.00	1525.	1330.	1329.	168.	-4994.	65.
108.75	1928.	2004.	1841.	321.	-3500.	97.
97.50	1891.	2220.	2167.	494.	-4427.	93.
86.25	2058.	2297.	2261.	612.	-6446.	24.
75.00	2086.	2352.	2216.	648.	-6541.	109.
63.75	1611.	2173.	2013.	611.	-4490.	216.
52.50	801.	1676.	1624.	519.	-3019.	35.
41.25	268.	1123.	1259.	344.	-3471.	-265.
30.00	622.	1005.	1124.	42.	-3764.	-350.
18.75	1049.	1270.	1069.	-252.	-2037.	-262.
7.50	213.	1087.	790.	-327.	121.	-217.
356.25	-1045.	262.	296.	-259.	179.	-284.
345.00	-1087.	-262.	-13.	-257.	-1468.	-382.
333.75	-17.	95.	247.	-321.	-2261.	-401.
322.50	1731.	1105.	970.	-401.	-1418.	-353.
311.25	3650.	2343.	1587.	-491.	-1224.	-307.

RUN 23 POINT 10

VKTS = 106.1 OMEG*R = 597.3 ALFS,C = 6.0 CLR/S,R =0.13524 CMY/S,R = 0.1814

V/OR = 0.300 RHO100 = 0.2247 CP/S = 0.006703 CDR/S,R =0.01160 CMX/S,R =-0.0068

UPPER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R COS	.1R SIN	.2R COS	.2R SIN	.3R COS	.3R SIN	.6R COS	.6R SIN
0	3756.9		4528.7		2042.6		750.8	
1	-699.0	4753.4	-431.5	2902.2	-91.4	1710.9	647.2	-323.8
2	-1353.9	-1586.9	-949.7	-1205.0	-739.3	-791.1	-2182.3	-1166.8
3	-287.5	-58.5	-151.3	-57.4	-92.3	3.6	37.3	231.9
4	14.4	-541.2	87.6	-284.7	17.5	-123.9	-17.9	418.8
5	-914.1	-78.9	-476.2	-195.7	-213.7	-76.8	654.3	67.7
6	-8.2	-720.1	108.6	-433.4	-21.0	-207.5	180.7	440.7
7	56.1	216.1	68.2	63.1	41.4	-33.3	-82.6	-3.0
8	-114.6	218.0	-65.3	45.1	31.6	-37.3	9.5	-157.2
9	470.1	24.2	185.0	103.8	1.4	-16.1	-312.0	-12.3
10	-135.4	99.5	-34.2	20.5	60.8	-10.4	58.1	-1.7

HARMONIC	UPPER ROTOR EDGEWISE BENDING MOMENT .1R COS	SIN	UPPER ROTOR PITCH LINK LOAD COS	SIN	UPPER ROTOR SHAFT STRESS COS	SIN
0	0.0		-45.7		5279.1	
1	0.0	0.0	-111.0	382.5	-3516.3	1288.7
2	0.0	0.0	107.2	-19.5	-389.8	-525.8
3	0.0	0.0	-15.5	36.8	297.2	-31.1
4	0.0	0.0	-8.3	39.3	-211.7	718.3
5	0.0	0.0	10.6	-72.9	224.7	-152.0
6	0.0	0.0	15.4	-13.9	26.7	84.8
7	0.0	0.0	-116.4	177.5	-32.5	-401.1
8	0.0	0.0	20.4	-55.6	223.0	-12.5
9	0.0	0.0	2.2	35.7	44.9	-69.1
10	0.0	0.0	11.6	-54.1	26.7	66.4

RUN 23 POINT 10
VKTS = 106.1 OMEG*R = 597.3 ALFS,C = 6.0 CLR/S,R =0.13524 CMY/S,R = 0.1814
V/DR = 0.300 RHU100 = 0.2247 CP/S = 0.006703 CDR/S,R =0.01160 CMX/S,R =-0.0068

LOWER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R COS	.1R SIN	.2R COS	.2R SIN	.3R COS	.3R SIN	.6R COS	.6R SIN
0	3991.9		3313.1		2423.7		26.3	
1	-465.0	-3797.2	-355.4	-2295.0	-97.7	-1257.2	142.4	175.0
2	-2186.5	891.7	-1499.9	875.8	-1213.5	559.8	-464.5	129.6
3	-368.4	-154.8	-217.8	-23.0	-85.6	-14.1	88.9	5.5
4	-464.3	922.3	-48.9	593.7	-59.5	273.3	29.5	-160.5
5	-374.5	322.8	-126.3	269.7	-91.5	140.3	41.2	-43.7
6	131.6	794.1	293.3	378.3	97.0	220.8	-19.0	-79.2
7	427.9	-159.8	115.1	-200.5	28.9	-58.4	-32.1	19.5
8	-30.4	-301.5	-75.9	-81.7	21.1	15.1	6.6	30.5
9	-29.2	15.4	-4.8	21.8	1.2	3.5	7.7	1.6
10	-18.9	84.6	14.8	51.9	-24.2	13.9	3.2	-16.4

HARMONIC	LOWER ROTOR EDGEWISE BENDING MOMENT .1R COS	SIN	LOWER ROTOR PITCH LINK LOAD COS	SIN
0	-4647.9		5.0	
1	3772.5	2465.4	-205.8	198.1
2	1433.1	-1673.9	-71.8	92.0
3	370.0	87.6	-4.6	-11.9
4	16.6	87.7	-5.7	23.6
5	-11.0	12.4	18.7	36.6
6	-137.2	-110.6	38.5	23.9
7	431.8	-472.8	-21.6	-43.4
8	-118.7	8.6	-24.2	-1.1
9	-7.1	18.9	-85.9	-29.7
10	-12.5	-15.6	-122.3	-30.6

RUN 23 POINT 10
VKTS = 106.1 OMEG*R = 597.3 ALFS,C = 6.0 CLR/S,R =0.13524 CMY/S,R = 0.1814
V/OR = 0.300 RHO100 = 0.2247 CP/S = 0.006703 CDR/S,R =0.01160 CMX/S,R =-0.0068

PSI	UPPER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	UR EDGEWISE BENDING .1R	UR PITCH LINK LOAD	UPPER ROTOR SHAFT STRESS
0.00	785.	2870.	1038.	-257.	0.	-129.	1972.
11.25	771.	2468.	658.	48.	0.	55.	1758.
22.50	1646.	2765.	1140.	-181.	0.	205.	2067.
33.75	4251.	4351.	2235.	-1142.	0.	112.	3144.
45.00	6828.	6121.	2924.	-1261.	0.	15.	3554.
56.25	7277.	6658.	3143.	355.	0.	219.	3202.
67.50	7141.	6608.	3416.	2086.	0.	376.	3829.
78.75	8243.	7198.	3849.	2482.	0.	180.	5641.
90.00	9695.	8231.	4439.	2189.	0.	-37.	7126.
101.25	10936.	9134.	4974.	1993.	0.	41.	7932.
112.50	11557.	9509.	4893.	2010.	0.	375.	8818.
123.75	9791.	8639.	4275.	2471.	0.	656.	9861.
135.00	6908.	6988.	3748.	2578.	0.	446.	10336.
146.25	6707.	6350.	3371.	919.	0.	-3.	9509.
157.50	7916.	6697.	2941.	-1447.	0.	111.	7813.
168.75	6488.	6138.	2470.	-2296.	0.	530.	7074.
180.00	3534.	4481.	1747.	-2145.	0.	331.	7936.
191.25	1668.	3070.	766.	-2314.	0.	-154.	8648.
202.50	-101.	2059.	134.	-1947.	0.	-116.	8138.
213.75	-1688.	1188.	15.	-813.	0.	66.	7369.
225.00	-1107.	1128.	2.	-401.	0.	-169.	6785.
236.25	232.	1848.	138.	-330.	0.	-525.	5826.
247.50	-7.	2251.	558.	959.	0.	-671.	4756.
258.75	-336.	2256.	932.	2573.	0.	-569.	4224.
270.00	613.	2622.	1143.	3183.	0.	-299.	4127.
281.25	1035.	3065.	1323.	3782.	0.	-260.	4161.
292.50	218.	2904.	1380.	4758.	0.	-571.	4075.
303.75	229.	2703.	1395.	4351.	0.	-660.	3423.
315.00	1883.	3266.	1554.	2196.	0.	-361.	2180.
326.25	3173.	3997.	1670.	296.	0.	-185.	1097.
337.50	2601.	3958.	1625.	-307.	0.	-238.	954.
348.75	1332.	3395.	1469.	-362.	0.	-236.	1597.

RUN 23 POINT 10
VKTS = 106.1 OMEG*R = 597.3 ALFS,C = 6.0 CLR/S,R =0.13524 CMY/S,R = 0.1814
V/OR = 0.300 RHU100 = 0.2247 CP/S = 0.006703 CDR/S,R =0.01160 CMX/S,R =-0.0068

PSI	LOWER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	LR EDGEWISE BENDING .1R	LR PITCH LINK LOAD
300.00	9733.	6717.	4175.	-299.	-3921.	-45.
288.75	8246.	6525.	4255.	107.	-5921.	-321.
277.50	7673.	5926.	4356.	421.	-8072.	-266.
266.25	9422.	6472.	4689.	404.	-9118.	-105.
255.00	10579.	7410.	4937.	325.	-9340.	-142.
243.75	9304.	7222.	4809.	336.	-10020.	53.
232.50	7512.	6109.	4243.	238.	-11076.	242.
221.25	6995.	5208.	3494.	-55.	-11003.	63.
210.00	7040.	4893.	3001.	-418.	-9564.	31.
198.75	6156.	4613.	2702.	-695.	-8396.	227.
187.50	3945.	3634.	2095.	-753.	-8223.	194.
176.25	1480.	2036.	1185.	-603.	-7722.	107.
165.00	51.	758.	529.	-419.	-5984.	130.
153.75	-219.	353.	434.	-270.	-4109.	88.
142.50	253.	606.	785.	-122.	-3517.	173.
131.25	1204.	1223.	1279.	6.	-3941.	322.
120.00	1936.	1849.	1644.	155.	-3959.	187.
108.75	2032.	2155.	1934.	383.	-3148.	151.
97.50	2176.	2378.	2300.	581.	-2726.	389.
86.25	2502.	2693.	2521.	674.	-3514.	322.
75.00	2214.	2664.	2405.	741.	-4402.	153.
63.75	1645.	2280.	2200.	739.	-3950.	306.
52.50	1799.	2138.	2070.	544.	-2437.	184.
41.25	2353.	2292.	1934.	223.	-1169.	-178.
30.00	2487.	2383.	1846.	-67.	-670.	-7.
18.75	2119.	2303.	1755.	-241.	-342.	130.
7.50	1305.	1897.	1379.	-244.	455.	-322.
356.25	313.	1148.	830.	-128.	1307.	-432.
345.00	105.	701.	663.	-45.	1071.	-162.
333.75	1657.	1253.	1214.	-73.	-439.	-431.
322.50	5062.	2947.	2351.	-218.	-2002.	-659.
311.25	8662.	5233.	3542.	-387.	-2880.	-222.

RUN 23 POINT 11
VKTS = 106.4 OMEG*R = 598.1 ALFS,C = 6.0 CLR/S,R =0.14505 CMY/S,R = 0.1888
V/OR = 0.300 RHO100 = 0.2231 CP/S = 0.009078 COR/S,R =0.01129 CMX/S,R =-0.0126

UPPER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R COS	.1R SIN	.2R COS	.2R SIN	.3R COS	.3R SIN	.6R COS	.6R SIN
0	4585.5		5113.5		2486.8		1063.5	
1	-422.5	5433.8	-251.6	3351.5	35.7	1999.2	699.3	-59.1
2	-1776.4	-2029.3	-1212.9	-1546.1	-939.3	-1029.3	-2585.9	-1426.7
3	-408.0	-204.3	-187.1	-153.7	-88.3	-51.0	400.5	85.1
4	-34.9	-346.0	56.7	-191.5	22.3	-74.4	63.5	278.5
5	-1177.8	-36.0	-627.4	-205.6	-280.7	-53.8	867.4	1.6
6	-51.8	-730.2	100.2	-441.6	-23.3	-202.4	196.2	431.0
7	-2.2	302.1	41.9	86.0	56.4	-25.1	-65.8	-84.8
8	-33.7	390.3	-64.5	86.4	29.3	-87.8	-48.0	-289.4
9	799.8	169.5	265.6	226.1	-6.5	-26.1	-517.9	-86.0
10	-125.7	170.8	-43.1	40.7	69.5	-21.7	76.5	-40.5

HARMONIC	UPPER ROTOR EDGEWISE BENDING MOMENT .1R COS	SIN	UPPER ROTOR PITCH LINK LOAD COS	SIN	UPPER ROTOR SHAFT STRESS COS	SIN
0	0.0		-149.2		5775.2	
1	0.0	0.0	-106.0	428.2	-2692.8	-794.6
2	0.0	0.0	128.3	-38.0	-242.9	-645.5
3	0.0	0.0	19.8	31.2	177.6	-198.6
4	0.0	0.0	4.6	59.2	-428.8	642.6
5	0.0	0.0	23.5	-92.6	377.3	-66.2
6	0.0	0.0	-11.5	-37.5	125.3	101.4
7	0.0	0.0	-167.6	238.7	6.9	-575.1
8	0.0	0.0	11.3	-114.6	199.6	-228.1
9	0.0	0.0	62.2	79.6	46.5	-108.0
10	0.0	0.0	-21.0	-70.3	57.8	-12.9

RUN 23 POINT 11

VKTS =	106.4	OMEG*R =	598.1	ALFS,C =	6.0	CLR/S,R =0.14505	CMY/S,R = 0.1888
V/CR =	0.300	RHU100 =	0.2231	CP/S =	0.009078	CDR/S,R =0.01129	CMX/S,R =-0.0126

LOWER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R COS	.1R SIN	.2R COS	.2R SIN	.3R COS	.3R SIN	.6R COS	.6R SIN
0	5556.9		4588.2		3236.3		139.5	
1	-225.8	-5708.5	-313.1	-3642.2	-74.2	-2196.0	111.5	21.9
2	-2231.4	1379.0	-1473.7	1221.3	-1209.2	805.6	-465.3	155.6
3	-538.9	-20.0	-305.8	79.6	-141.1	35.1	131.7	-8.2
4	-594.3	1092.5	-85.2	704.2	-70.8	321.5	66.9	-175.7
5	-283.1	-78.1	-173.6	36.7	-82.9	31.3	42.4	8.0
6	312.0	686.3	375.3	278.7	156.6	189.5	-28.6	-67.6
7	522.7	-308.9	72.8	-302.9	-1.4	-86.3	-41.4	35.9
8	-15.9	-157.5	-37.2	-45.1	12.8	5.0	-1.9	17.8
9	-44.0	281.1	53.1	109.1	-15.8	1.0	7.3	-21.9
10	-88.7	152.2	7.1	96.7	-32.4	11.5	12.4	-22.9

HARMONIC	LOWER ROTOR EDGEWISE BENDING MOMENT .1R COS	LOWER ROTOR EDGEWISE BENDING MOMENT .1R SIN	LOWER ROTOR PITCH LINK LOAD COS	LOWER ROTOR PITCH LINK LOAD SIN
0	-4138.8		81.7	
1	4532.9	3795.1	-230.8	225.7
2	1182.6	-1718.2	-54.1	107.7
3	416.9	-4.3	51.6	29.7
4	26.8	-10.3	-22.2	53.4
5	-44.5	29.2	25.3	28.8
6	-150.9	-143.0	38.0	4.9
7	-766.9	-1047.8	-9.8	-73.5
8	-138.3	-132.0	0.4	-7.6
9	-96.8	-13.3	-52.3	-129.0
10	-71.1	-16.5	-121.6	-87.0

RUN 23 POINT 11

VKTS = 106.4 OMEG*R = 598.1 ALFS,C = 6.0 CLR/S,R =0.14505 CMY/S,R = 0.1888

V/OR = 0.300 RHO100 = 0.2231 CP/S = 0.009078 CDR/S,R =0.01129 CMX/S,R =-0.0126

PSI	UPPER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	UR EDGEWISE BENDING .1R	UR PITCH LINK LOAD	UPPER ROTOR SHAFT STRESS
0.00	1352.	3191.	1362.	149.	0.	-206.	3402.
11.25	1615.	2986.	943.	-54.	0.	6.	2053.
22.50	2146.	3203.	1560.	-242.	0.	175.	2200.
33.75	5315.	4958.	2747.	-1468.	0.	49.	3272.
45.00	8474.	7050.	3381.	-1745.	0.	-116.	3060.
56.25	8377.	7484.	3625.	577.	0.	22.	2277.
67.50	8080.	7317.	4078.	3015.	0.	232.	2928.
78.75	10073.	8299.	4689.	3456.	0.	184.	4490.
90.00	11940.	9701.	5427.	3248.	0.	-84.	5411.
101.25	13049.	10619.	6089.	3258.	0.	-159.	5816.
112.50	13889.	11044.	6007.	3078.	0.	352.	6697.
123.75	11891.	10120.	5218.	3403.	0.	852.	8162.
135.00	7958.	7946.	4436.	3681.	0.	386.	9097.
146.25	7248.	6818.	3833.	1691.	0.	-302.	8411.
157.50	8647.	7151.	3299.	-1462.	0.	68.	6894.
168.75	7039.	6597.	2789.	-2677.	0.	618.	6513.
180.00	3774.	4709.	1929.	-2618.	0.	131.	7571.
191.25	1985.	3168.	773.	-2971.	0.	-427.	8616.
202.50	-5.	2105.	102.	-2371.	0.	-157.	8882.
213.75	-2182.	1001.	-13.	-657.	0.	52.	8678.
225.00	-1558.	808.	-91.	-148.	0.	-311.	8228.
236.25	288.	1750.	64.	-247.	0.	-708.	7565.
247.50	-33.	2349.	668.	1343.	0.	-906.	6789.
258.75	-604.	2314.	1201.	3262.	0.	-803.	6068.
270.00	1001.	2822.	1436.	3536.	0.	-374.	5801.
281.25	2177.	3645.	1644.	3831.	0.	-294.	6308.
292.50	1063.	3594.	1864.	5096.	0.	-774.	7093.
303.75	877.	3327.	2072.	4742.	0.	-937.	6931.
315.00	3472.	4166.	2249.	2019.	0.	-529.	5230.
326.25	5067.	5129.	2222.	108.	0.	-248.	3330.
337.50	3166.	4661.	2083.	436.	0.	-272.	3121.
348.75	1152.	3601.	1892.	762.	0.	-292.	3911.

RUN 23 POINT 11

VKTS = 106.4 OMEG*R = 598.1 ALFS,C = 6.0 CLR/S,R =0.14505 CMY/S,R = 0.1888

V/OR = 0.300 RHO100 = 0.2231 CP/S = 0.009078 CDR/S,R =0.01129 CMX/S,R =-0.0126

PSI	LOWER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	LR EDGEWISE BENDING .1R	LR PITCH LINK LOAD
300.00	13088.	8927.	5711.	-143.	-4024.	-111.
288.75	12302.	9326.	6011.	264.	-5271.	-389.
277.50	11369.	8750.	6171.	644.	-8258.	-97.
266.25	12791.	9082.	6488.	693.	-10663.	-12.
255.00	14051.	9999.	6699.	647.	-10951.	-190.
243.75	12674.	9842.	6540.	674.	-10292.	172.
232.50	10458.	8567.	5919.	577.	-10735.	452.
221.25	9758.	7419.	5061.	243.	-11987.	133.
210.00	9978.	7028.	4446.	-210.	-11818.	79.
198.75	8948.	6754.	4034.	-565.	-9780.	356.
187.50	5906.	5487.	3233.	-628.	-7857.	279.
176.25	2442.	3263.	1970.	-463.	-7234.	106.
165.00	260.	1327.	880.	-292.	-6780.	159.
153.75	-449.	467.	480.	-188.	-5031.	243.
142.50	128.	634.	759.	-127.	-2578.	390.
131.25	1321.	1418.	1270.	-73.	-1574.	467.
120.00	1621.	1939.	1548.	109.	-2397.	317.
108.75	1181.	1849.	1675.	402.	-2686.	347.
97.50	1456.	1967.	1946.	596.	-1261.	482.
86.25	1799.	2413.	2228.	702.	-196.	269.
75.00	1480.	2428.	2359.	799.	-1107.	165.
63.75	2189.	2487.	2485.	688.	-2412.	342.
52.50	3844.	3232.	2580.	352.	-1759.	156.
41.25	3976.	3664.	2522.	107.	714.	-15.
30.00	3092.	3299.	2453.	3.	2329.	298.
18.75	3142.	3095.	2360.	-110.	1385.	180.
7.50	3045.	3031.	2036.	-116.	159.	-333.
356.25	2028.	2497.	1688.	24.	1437.	-161.
345.00	2041.	2220.	1709.	89.	3106.	-11.
333.75	3948.	2963.	2238.	35.	1407.	-631.
322.50	7095.	4575.	3332.	-66.	-2288.	-727.
311.25	10858.	6871.	4733.	-202.	-4037.	-100.

RUN 23 POINT 12

VKTS =	106.8	OMEG*R =	600.5	ALFS,C =	8.2	CLR/S,R =	0.09322	CMY/S,R =	0.1607
V/CP =	0.300	RHO/RO =	0.2214	CP/S =	0.001055	CDR/S,R =	0.01567	CMX/S,R =	-0.0055

UPPER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R COS	.1R SIN	.2R COS	.2R SIN	.3R COS	.3R SIN	.6R COS	.6R SIN
0	-1851.2		639.2		-708.6		-1626.4	
1	272.1	-98.2	435.6	-391.6	447.5	-526.8	1206.0	-2404.7
2	-260.6	-684.3	-180.7	-438.7	-196.5	-262.0	-832.4	-399.2
3	55.7	143.3	42.9	97.9	25.1	59.4	-103.0	218.4
4	421.4	-388.4	287.8	-185.7	119.9	-106.0	-314.4	367.6
5	-567.5	524.7	-364.7	199.7	-129.4	88.2	404.0	-364.8
6	-1.6	-404.3	50.6	-230.6	5.1	-117.0	102.2	240.9
7	70.5	290.1	45.6	57.7	55.5	-63.9	-21.7	-88.4
8	-350.6	-80.9	-124.7	-49.1	-1.0	37.5	195.6	9.0
9	80.5	-571.1	165.8	-221.1	0.2	-9.2	22.0	399.0
10	-170.2	113.9	-63.9	1.1	34.7	-10.3	101.2	31.8

HARMONIC	UPPER ROTOR EDGEWISE BENDING MOMENT .1R COS	SIN	UPPER ROTOR PITCH LINK LOAD COS	SIN	UPPER ROTOR SHAFT STRESS COS	SIN
0	0.0		-481.2		5000.4	
1	0.0	0.0	-31.2	239.0	-3385.2	735.8
2	0.0	0.0	-6.3	20.0	-730.9	-650.1
3	0.0	0.0	-57.3	29.4	309.7	-4.9
4	0.0	0.0	-58.5	-30.7	-8.1	502.1
5	0.0	0.0	43.5	-85.1	234.1	-430.2
6	0.0	0.0	27.4	52.2	-57.6	46.3
7	0.0	0.0	-68.4	90.1	-126.0	-447.7
8	0.0	0.0	-36.2	74.3	69.9	296.1
9	0.0	0.0	22.6	-4.9	-0.0	-89.5
10	0.0	0.0	9.3	-0.7	-47.6	19.2

RUN 23	POINT 12									
VKTS =	106.8	OMEG*R =	600.5	ALFS,C =	8.2	CLR/S,R =0.09322		CMY/S,R = 0.1807		
V/OR =	0.300	RHO100 =	0.2214	CP/S =	0.001055	CDR/S,R =0.01567		CMX/S,R =-0.0055		

LOWER ROTOR BLADE NORMAL BENDING MOMENT

	.1R		.2R		.3R		.6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
HARMONIC								
0	-256.9		436.5		403.6		-249.3	
1	-1161.6	824.4	-552.7	957.7	-265.8	990.9	109.1	523.8
2	-1356.4	496.4	-978.4	458.5	-826.8	246.1	-360.8	27.1
3	102.5	-159.1	44.9	-89.7	37.9	-23.3	14.1	3.9
4	358.0	526.5	318.6	234.0	144.2	152.9	-85.6	-70.9
5	-148.8	-28.4	-77.6	40.0	-29.8	32.9	18.2	1.1
6	-80.2	533.3	101.9	301.7	13.1	157.4	4.0	-53.4
7	284.0	124.8	172.1	-72.2	65.4	-56.4	-28.4	-5.8
8	-65.7	-193.5	-58.5	-33.6	17.5	14.2	9.1	11.6
9	-12.5	137.2	18.3	18.0	-16.0	-23.4	3.5	-7.3
10	23.4	99.2	30.8	23.4	-5.6	6.8	-0.1	-11.5

	LOWER ROTOR EDGEWISE BENDING MOMENT .1R		LOWER ROTOR PITCH LINK LOAD	
	COS	SIN	COS	SIN
HARMONIC				
0	-5027.7		-119.2	
1	2409.8	-246.5	-194.9	151.0
2	1288.6	-1032.1	-22.3	34.7
3	116.4	130.2	-5.0	-48.0
4	32.9	62.9	-2.1	-9.6
5	67.5	24.5	27.2	4.2
6	-51.5	-63.4	42.8	15.4
7	1304.7	-240.0	-0.2	4.1
8	-18.3	28.6	1.9	14.6
9	-26.7	-22.2	18.4	15.1
10	3.7	4.1	48.7	35.6

RUN 23 POINT 12

VKTS = 106.8 OMEG*R = 600.5 ALFS,C = 8.2 CLR/S,R =0.09322 CMY/S,R = 0.1807

V/CR = 0.300 RHO100 = 0.2214 CP/S = 0.001055 CDR/S,R =0.01567 CMX/S,R =-0.0055

PSI	UPPER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	UR EDGEWISE BENDING .1R	UR PITCH LINK LOAD	UPPER ROTOR SHAFT STRESS
0.00	-2302.	934.	-348.	-867.	0.	-636.	1259.
11.25	-2398.	380.	-742.	-1283.	0.	-410.	1078.
22.50	-1543.	581.	-907.	-2643.	0.	-403.	1310.
33.75	-1920.	693.	-840.	-2746.	0.	-489.	1901.
45.00	-3076.	159.	-909.	-2028.	0.	-354.	2608.
56.25	-2968.	-189.	-1135.	-2422.	0.	-19.	3083.
67.50	-1980.	85.	-1282.	-3278.	0.	96.	3628.
78.75	-1861.	320.	-1203.	-3382.	0.	-224.	4912.
90.00	-1926.	423.	-876.	-3617.	0.	-577.	6567.
101.25	-632.	967.	-665.	-4385.	0.	-532.	7619.
112.50	3.	1243.	-987.	-4133.	0.	-266.	8148.
123.75	-2268.	224.	-1463.	-2601.	0.	-152.	8939.
135.00	-4066.	-797.	-1458.	-2092.	0.	-199.	9697.
146.25	-2045.	-64.	-1155.	-3603.	0.	-281.	9104.
157.50	234.	1174.	-1015.	-4949.	0.	-395.	7151.
168.75	-619.	1027.	-1028.	-4645.	0.	-482.	6066.
180.00	-2124.	283.	-1145.	-3881.	0.	-455.	7194.
191.25	-2832.	-61.	-1403.	-3216.	0.	-417.	8479.
202.50	-4061.	-609.	-1576.	-1999.	0.	-506.	7789.
213.75	-4319.	-970.	-1454.	-1145.	0.	-624.	6437.
225.00	-2502.	-119.	-1060.	-1421.	0.	-630.	6194.
236.25	-1474.	940.	-518.	-1196.	0.	-633.	6101.
247.50	-1820.	1103.	-109.	94.	0.	-761.	5232.
258.75	-1243.	1213.	-20.	882.	0.	-818.	4757.
270.00	-770.	1565.	10.	1384.	0.	-636.	5229.
281.25	-1773.	1364.	164.	2564.	0.	-521.	5407.
292.50	-1955.	1098.	215.	2958.	0.	-728.	4483.
303.75	-864.	1468.	134.	1879.	0.	-879.	2983.
315.00	-848.	1665.	109.	1075.	0.	-654.	1814.
326.25	-1334.	1385.	84.	601.	0.	-443.	1501.
337.50	-883.	1437.	-1.	-626.	0.	-598.	1702.
348.75	-1069.	1533.	-95.	-1326.	0.	-777.	1639.

RUN 23   POINT 12
VKTS = 106.8   OMEG*R = 600.5   ALFS,C = 8.2   CLR/S,R =0.09322   CMY/S,R = 0.1807
V/OR = 0.300   RHO100 = 0.2214   CP/S = 0.001055   CDR/S,R =0.01567   CMX/S,R =-0.0055

PSI	LOWER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	LR EDGEWISE BENDING .1R	LR PITCH LINK LOAD
300.00	-987.	-287.	-253.	-547.	-2562.	-338.
288.75	-1051.	-237.	-192.	-457.	-5076.	-257.
277.50	-561.	-90.	46.	-428.	-6394.	-378.
266.25	1045.	665.	418.	-525.	-5843.	-366.
255.00	1656.	1304.	532.	-551.	-5729.	-177.
243.75	216.	894.	305.	-435.	-7366.	-108.
232.50	-899.	28.	-14.	-398.	-8829.	-65.
221.25	-95.	-111.	-180.	-569.	-8082.	27.
210.00	1062.	473.	-58.	-814.	-6265.	9.
198.75	1001.	890.	190.	-953.	-5954.	13.
187.50	108.	642.	161.	-911.	-7207.	112.
176.25	-637.	56.	-153.	-730.	-7485.	70.
165.00	-916.	-219.	-229.	-508.	-5695.	-16.
153.75	-887.	-15.	178.	-269.	-4169.	52.
142.50	-386.	398.	728.	-22.	-5139.	80.
131.25	798.	985.	1157.	163.	-7074.	46.
120.00	1913.	1762.	1583.	284.	-7049.	118.
108.75	2233.	2377.	2076.	410.	-5482.	113.
97.50	2312.	2653.	2425.	515.	-5312.	3.
86.25	2400.	2716.	2422.	563.	-7021.	69.
75.00	1729.	2432.	2103.	594.	-7814.	150.
63.75	497.	1729.	1643.	585.	-6125.	15.
52.50	-363.	1005.	1174.	462.	-3964.	-91.
41.25	-866.	515.	779.	240.	-3607.	-160.
30.00	-1106.	206.	500.	-54.	-4145.	-350.
18.75	-966.	86.	248.	-369.	-3201.	-363.
7.50	-1395.	-121.	-128.	-553.	-895.	-185.
356.25	-2837.	-839.	-641.	-553.	179.	-271.
345.00	-3803.	-1711.	-1117.	-516.	-1087.	-459.
333.75	-3417.	-1961.	-1284.	-524.	-2607.	-375.
322.50	-2475.	-1490.	-995.	-543.	-2355.	-319.
311.25	-1543.	-767.	-508.	-565.	-1530.	-414.

RUN 23 POINT 13
VKTS = 107.0 OMEG*R = 601.7 ALFS,C = 8.5 CLR/S,R =0.13127 CMY/S,R = 0.2212
V/OR = 0.300 RHO100 = 0.2210 CP/S = 0.007816 CDR/S,R =0.01556 CMX/S,R =-0.0151

UPPER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R COS	.1R SIN	.2R COS	.2R SIN	.3R COS	.3R SIN	.6R COS	.6R SIN
0	1751.5		3239.1		1144.1		-13.1	
1	2965.1	961.4	2285.0	362.3	1757.1	-84.5	2209.7	-2259.5
2	-1742.4	-2070.0	-1123.5	-1495.6	-869.8	-961.1	-2102.5	-1636.4
3	-200.2	23.3	-57.7	1.1	-0.7	59.1	198.9	389.7
4	-401.9	-618.4	-98.7	-375.2	-44.7	-149.3	645.7	519.1
5	-843.9	396.9	-502.9	62.3	-209.9	20.5	646.4	-192.1
6	-124.6	-799.6	84.7	-461.6	5.7	-206.8	183.5	499.8
7	320.1	281.6	181.4	84.9	75.6	-56.6	-239.7	15.3
8	-265.8	151.8	-114.1	15.1	15.3	-28.0	86.6	-157.9
9	340.0	-422.7	234.9	-104.6	0.6	-24.1	-129.1	264.1
10	-25.1	165.8	7.1	52.6	56.5	-27.3	97.1	16.5

HARMONIC	UPPER ROTOR EDGEWISE BENDING MOMENT .1R COS	SIN	UPPER ROTOR PITCH LINK LOAD COS	SIN	UPPER ROTOR SHAFT STRESS COS	SIN
0	0.0		-407.8		6002.0	
1	0.0	0.0	-125.1	338.6	-2439.6	-3869.1
2	0.0	0.0	168.8	-1.6	-326.7	-661.5
3	0.0	0.0	-166.4	53.2	529.8	-406.3
4	0.0	0.0	15.0	-17.4	16.0	398.1
5	0.0	0.0	-26.8	-72.5	93.8	-161.9
6	0.0	0.0	-19.0	-14.9	31.4	151.6
7	0.0	0.0	-44.1	29.8	-264.6	-530.4
8	0.0	0.0	7.0	-4.8	57.7	3.7
9	0.0	0.0	-3.1	-13.2	34.4	-60.8
10	0.0	0.0	33.9	-31.9	-8.5	29.1

RUN 23 POINT 13
VKTS = 107.0 OMEG*R = 601.7 ALFS,C = 8.5 CLR/S,R =0.13127 CMY/S,R = 0.2212
V/OR = 0.300 RHO100 = 0.2210 CP/S = 0.007816 CDR/S,R =0.01556 CMX/S,R =-0.0151

LOWER ROTOR BLADE NORMAL BENDING MOMENT

	.1R		.2R		.3R		.6R	
HARMONIC	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	5436.1		4492.2		3138.2		88.1	
1	-3839.6	-3017.7	-2747.2	-1448.9	-1852.2	-759.9	-267.9	224.5
2	-2890.5	680.4	-2032.4	799.2	-1653.3	417.9	-616.5	-73.4
3	-597.1	-169.9	-375.4	22.6	-187.3	20.8	154.3	44.2
4	-426.1	698.5	-76.9	447.3	-66.1	179.6	50.2	-133.1
5	68.2	-132.7	21.0	-89.5	22.2	-21.1	3.4	22.3
6	187.1	676.4	298.1	311.3	103.1	206.5	-37.4	-54.3
7	660.6	67.9	230.0	-176.9	18.6	-30.0	-64.4	-8.0
8	82.3	-138.4	1.1	-64.6	16.7	9.7	-9.4	14.7
9	211.8	-401.2	-60.7	-175.4	15.1	-2.8	-7.7	43.9
10	5.8	53.8	25.0	25.4	-3.2	17.2	1.9	-11.5

	LOWER ROTOR EDGEWISE BENDING MOMENT .1R		LOWER ROTOR PITCH LINK LOAD	
HARMONIC	COS	SIN	COS	SIN
0	-3815.8		178.3	
1	4537.4	6106.3	-266.9	293.0
2	3469.1	-649.7	-47.9	60.5
3	430.7	475.1	110.5	110.7
4	-189.8	-39.9	-35.1	42.1
5	73.7	-30.6	44.0	53.6
6	-89.6	-102.3	26.2	22.3
7	-898.8	-926.8	48.2	-58.2
8	37.0	-82.5	-19.4	-14.7
9	138.3	106.7	-14.9	-191.7
10	13.7	-33.2	16.2	-27.3

RUN 23 POINT 13

VKTS =	107.0	OMEG*R =	601.7	ALFS,C =	8.5	CLR/S,R = 0.13127	CMY/S,R = 0.2212
V/CR =	0.300	RHO100 =	0.2210	CP/S =	0.007816	CDR/S,R = 0.01556	CMX/S,R = -0.0151

PSI	UPPER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	UR EDGEWISE BENDING .1R	UR PITCH LINK LOAD	UPPER ROTOR SHAFT STRESS
0.00	1773.	4135.	1930.	1583.	0.	-568.	3726.
11.25	821.	2968.	1147.	1154.	0.	-555.	2272.
22.50	1535.	2864.	1176.	-648.	0.	-310.	1654.
33.75	3308.	3967.	1721.	-2456.	0.	-106.	1281.
45.00	4017.	4628.	1858.	-2998.	0.	-122.	354.
56.25	3545.	4279.	1615.	-2212.	0.	-81.	-377.
67.50	3300.	3956.	1442.	-742.	0.	-36.	373.
78.75	3222.	3983.	1475.	260.	0.	-229.	2098.
90.00	3627.	4292.	1832.	-52.	0.	-400.	3224.
101.25	5391.	5158.	2186.	-957.	0.	-348.	3639.
112.50	5781.	5440.	1857.	-873.	0.	-291.	4428.
123.75	2382.	3801.	1061.	123.	0.	-238.	5750.
135.00	-378.	1978.	531.	-167.	0.	-114.	6580.
146.25	1139.	2110.	223.	-2539.	0.	-79.	6201.
157.50	2313.	2663.	-178.	-4477.	0.	-46.	5369.
168.75	-390.	1562.	-659.	-4306.	0.	135.	5791.
180.00	-3389.	-146.	-1316.	-3789.	0.	163.	7818.
191.25	-4509.	-1046.	-2003.	-3966.	0.	-90.	9579.
202.50	-5283.	-1469.	-2148.	-3515.	0.	-315.	9774.
213.75	-4904.	-1363.	-1694.	-2622.	0.	-486.	9572.
225.00	-2451.	-143.	-1013.	-2386.	0.	-747.	10165.
236.25	-486.	1453.	-134.	-1427.	0.	-935.	10766.
247.50	-68.	2377.	819.	1244.	0.	-954.	10452.
258.75	824.	2973.	1495.	3729.	0.	-890.	9759.
270.00	2325.	3824.	2013.	5134.	0.	-739.	9535.
281.25	3024.	4597.	2586.	6379.	0.	-664.	9704.
292.50	3562.	5077.	3034.	6713.	0.	-813.	9513.
303.75	5001.	5709.	3305.	5175.	0.	-874.	8471.
315.00	6362.	6433.	3441.	3262.	0.	-680.	7075.
326.25	6300.	6516.	3309.	2199.	0.	-549.	6262.
337.50	4998.	5917.	3030.	1500.	0.	-553.	5991.
348.75	3356.	5161.	2674.	1254.	0.	-536.	5264.

RUN 23 POINT 13
VKTS = 107.0 OMEG*R = 601.7 ALFS,C = 8.5 CLR/S,R =0.13127 CMY/S,R = 0.2212
V/OR = 0.300 RHO100 = 0.2210 CP/S = 0.007816 CDR/S,R =0.01556 CMX/S,R =-0.0151

	LOWER ROTOR BLADE NORMAL BENDING MOMENT				LR EDGEWISE	LR PITCH
	.1R	.2R	.3R	.6R	BENDING .1R	LINK LOAD
PSI						
300.00	8689.	6123.	3827.	-216.	-8225.	-119.
288.75	8390.	6440.	4508.	256.	-9192.	-313.
277.50	9865.	6935.	5056.	494.	-11954.	-130.
266.25	11705.	8069.	5579.	539.	-14656.	61.
255.00	11770.	8678.	5879.	619.	-14405.	64.
243.75	10899.	8380.	5797.	612.	-12402.	219.
232.50	10355.	7865.	5414.	370.	-11668.	396.
221.25	10227.	7501.	4972.	20.	-11936.	246.
210.00	10580.	7421.	4717.	-332.	-10919.	95.
198.75	10408.	7498.	4538.	-597.	-8329.	269.
187.50	8063.	6774.	4038.	-548.	-5819.	342.
176.25	5033.	5016.	3261.	-223.	-4601.	125.
165.00	4332.	3806.	2778.	42.	-4161.	237.
153.75	5163.	4021.	2889.	213.	-2896.	745.
142.50	5195.	4544.	3355.	463.	-715.	837.
131.25	5261.	4745.	3799.	674.	19.	511.
120.00	6150.	5086.	3962.	743.	-1775.	561.
108.75	6007.	5263.	3872.	860.	-3336.	757.
97.50	4714.	4841.	3827.	1032.	-2189.	460.
86.25	4401.	4519.	3877.	986.	-198.	207.
75.00	4727.	4576.	3693.	699.	-113.	418.
63.75	3920.	4201.	3137.	373.	-630.	372.
52.50	2535.	3236.	2363.	60.	1222.	36.
41.25	1405.	2251.	1504.	-234.	4636.	203.
30.00	-88.	1263.	734.	-435.	6108.	482.
18.75	-1365.	284.	223.	-566.	4950.	163.
7.50	-1292.	-175.	-172.	-685.	3750.	-86.
356.25	-1202.	-262.	-567.	-679.	3793.	102.
345.00	-2042.	-573.	-618.	-479.	3367.	-132.
333.75	-1057.	-415.	65.	-322.	722.	-711.
322.50	3424.	1473.	1358.	-416.	-3577.	-608.
311.25	7783.	4364.	2757.	-501.	-6997.	-107.

RUN 23 POINT 14

VKTS = 107.0 OMEG*R = 604.1 ALFS,C = 8.4 CLR/S,R =0.11709 CMY/S,R = 0.2056

V/OR = 0.299 RHO100 = 0.2198 CP/S = 0.004506 CDR/S,R =0.01566 CMX/S,R =-0.0071

UPPER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R COS	.1R SIN	.2R COS	.2R SIN	.3R COS	.3R SIN	.6R COS	.6R SIN
0	1534.3		3075.8		1028.4		-229.7	
1	-341.8	597.8	35.0	-6.1	217.6	-300.7	1064.0	-2342.0
2	-1239.5	-1334.3	-850.6	-975.4	-689.2	-628.8	-2184.0	-1064.4
3	-65.0	49.8	-29.5	31.1	-38.0	24.6	-258.3	58.7
4	485.8	-911.3	410.8	-419.0	166.6	-200.9	-413.5	894.5
5	-342.2	65.4	-162.0	-20.5	-40.4	-30.1	199.7	21.7
6	220.0	-584.9	205.9	-307.1	54.8	-170.0	-1.4	393.2
7	10.5	296.5	26.2	88.9	37.9	-38.0	-59.4	-52.8
8	-420.2	-164.8	-148.7	-100.9	6.7	47.1	256.3	65.0
9	620.9	-185.4	290.4	59.1	-1.1	-15.0	-366.2	175.8
10	-226.5	29.8	-47.3	-4.6	67.2	28.4	52.5	68.0

HARMONIC	UPPER ROTOR EDGEWISE BENDING MOMENT .1R COS	SIN	UPPER ROTOR PITCH LINK LOAD COS	SIN	UPPER ROTOR SHAFT STRESS COS	SIN
0	0.0		-459.1		5972.7	
1	0.0	0.0	-167.0	337.9	-2006.2	1079.5
2	0.0	0.0	135.9	-25.7	-618.1	-834.1
3	0.0	0.0	-116.6	41.4	72.7	-26.7
4	0.0	0.0	28.3	-37.7	-224.2	892.1
5	0.0	0.0	-43.0	-76.7	215.8	-232.5
6	0.0	0.0	6.7	-18.0	-34.4	56.3
7	0.0	0.0	-55.5	44.3	-101.8	-281.8
8	0.0	0.0	-13.5	0.3	-18.5	297.8
9	0.0	0.0	24.3	-13.7	18.0	-87.8
10	0.0	0.0	51.4	-15.7	-61.7	14.6

RUN 23 POINT 14

VKTS =	107.0	UMEG*R =	604.1	ALFS,C =	8.4	CLK/S,R =	0.11709	CMY/S,R =	0.2056
V/OR =	0.299	RHU100 =	0.2198	CP/S =	0.004506	COR/S,R =	0.01566	CMX/S,R =	-0.0071

LOWER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R COS	.1R SIN	.2R COS	.2R SIN	.3R COS	.3R SIN	.6R COS	.6R SIN
0	1857.3		2004.8		1467.1		-122.3	
1	472.5	519.2	612.5	676.7	515.8	811.8	215.3	492.3
2	-2222.6	1686.9	-1440.2	1415.5	-1226.5	974.4	-505.0	262.7
3	-106.8	133.3	-18.1	130.9	2.1	101.1	57.6	-15.9
4	-318.2	1183.2	86.8	716.2	-1.8	348.7	6.6	-189.8
5	-51.5	477.4	96.8	269.1	20.5	154.1	-2.1	-61.1
6	157.0	756.4	291.0	341.5	95.7	201.2	-26.8	-72.8
7	301.3	-216.0	62.7	-183.9	29.5	-45.4	-23.3	23.8
8	-106.0	-312.3	-82.8	-76.0	52.1	0.1	15.6	28.4
9	285.3	-353.0	-27.9	-173.2	-9.3	15.2	-7.3	45.5
10	41.2	81.9	54.8	16.4	6.8	15.7	-7.6	-12.2

HARMONIC	LOWER ROTOR EDGEWISE BENDING MOMENT .1R COS	SIN	LOWER ROTOR PITCH LINK LOAD COS	SIN
0	-4731.6		-19.5	
1	3942.9	1621.9	-163.2	244.3
2	1464.9	-3146.2	-44.1	111.1
3	227.7	-23.7	2.7	-13.9
4	84.2	-19.9	-9.5	40.9
5	-68.1	43.3	29.9	53.8
6	-78.1	-149.7	35.3	42.6
7	100.2	-614.7	-35.4	-12.2
8	-74.8	101.0	-35.8	1.3
9	60.7	139.3	-104.7	-2.4
10	2.2	10.2	-65.7	29.2

RUN 23 POINT 14
VKTS = 107.0 OMEGA*R = 604.1 ALFS,C = 8.4 CLR/S,R =0.11709 CMY/S,R = 0.2056
V/OR = 0.299 RHO100 = 0.2198 CP/S = 0.004506 CDR/S,R =0.01566 CMX/S,R =-0.0071

PSI	UPPER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	UR EDGEWISE BENDING .1R	UR PITCH LINK LOAD	UPPER ROTOR SHAFT STRESS
0.00	236.	2806.	810.	-1940.	0.	-608.	3214.
11.25	-1320.	1632.	83.	-1130.	0.	-643.	3758.
22.50	-1480.	998.	-299.	-1403.	0.	-483.	4222.
33.75	-492.	1489.	44.	-2088.	0.	-265.	4413.
45.00	472.	2239.	516.	-1925.	0.	-270.	4667.
56.25	1341.	2659.	763.	-1629.	0.	-228.	4934.
67.50	2684.	3241.	981.	-1735.	0.	-87.	5222.
78.75	3481.	3867.	1181.	-1304.	0.	-239.	6082.
90.00	2977.	3942.	1437.	-404.	0.	-477.	7512.
101.25	3342.	4100.	1751.	-379.	0.	-359.	8716.
112.50	4875.	4671.	1615.	-887.	0.	-155.	9333.
123.75	3823.	4237.	1073.	-451.	0.	-154.	9682.
135.00	926.	2816.	906.	-131.	0.	-169.	9782.
146.25	1702.	2763.	1063.	-2041.	0.	-130.	8997.
157.50	4685.	4062.	937.	-4549.	0.	-61.	7220.
168.75	3742.	4012.	682.	-4562.	0.	92.	6029.
180.00	472.	2486.	459.	-3100.	0.	107.	6817.
191.25	-538.	1606.	-6.	-2558.	0.	-153.	8099.
202.50	-934.	1379.	-377.	-1986.	0.	-413.	7685.
213.75	-1900.	1008.	-159.	-543.	0.	-582.	6397.
225.00	-655.	1448.	360.	26.	0.	-778.	5938.
236.25	1733.	2858.	888.	-128.	0.	-884.	5591.
247.50	2035.	3666.	1441.	1090.	0.	-878.	4594.
258.75	1795.	3716.	1841.	2979.	0.	-885.	4303.
270.00	2714.	4117.	2101.	3896.	0.	-800.	5376.
281.25	2790.	4539.	2378.	4769.	0.	-707.	6398.
292.50	1711.	4175.	2343.	5911.	0.	-882.	6292.
303.75	1414.	3625.	1928.	5603.	0.	-1023.	5365.
315.00	1770.	3562.	1692.	3791.	0.	-786.	4326.
326.25	1906.	3643.	1685.	1780.	0.	-565.	3671.
337.50	2060.	3605.	1531.	-328.	0.	-605.	3360.
348.75	1730.	3460.	1260.	-1992.	0.	-619.	3128.

RUN 23 POINT 14

VKTS = 107.0 OMEG*R = 604.1 ALFS,C = 8.4 CLR/S,R =0.11709 CMY/S,R = 0.2056

V/OR = 0.299 RHO100 = 0.2198 CP/S = 0.004506 CDR/S,R =0.01566 CMX/S,R =-0.0071

PSI	LOWER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	LR EDGEWISE BENDING .1R	LR PITCH LINK LOAD
300.00	3556.	2699.	1379.	-786.	-2055.	-80.
288.75	2431.	2543.	1501.	-430.	-3806.	-319.
277.50	2154.	2140.	1552.	-116.	-6798.	-454.
266.25	3093.	2457.	1824.	-11.	-9135.	-232.
255.00	3815.	2997.	2056.	21.	-9784.	-152.
243.75	3619.	3009.	1952.	9.	-10311.	-106.
232.50	2762.	2534.	1622.	-127.	-11670.	106.
221.25	2034.	1955.	1239.	-363.	-12314.	132.
210.00	2221.	1656.	874.	-665.	-11127.	11.
198.75	2268.	1647.	573.	-961.	-9328.	87.
187.50	342.	1092.	200.	-1013.	-8188.	178.
176.25	-2181.	-311.	-360.	-795.	-7229.	92.
165.00	-2461.	-1197.	-733.	-617.	-5671.	20.
153.75	-1268.	-715.	-446.	-530.	-3933.	58.
142.50	-509.	192.	370.	-317.	-3013.	161.
131.25	817.	1037.	1206.	-55.	-3228.	240.
120.00	2889.	2223.	1859.	124.	-3783.	194.
108.75	3574.	3229.	2495.	400.	-3691.	178.
97.50	3495.	3617.	3192.	766.	-3339.	300.
86.25	4694.	4165.	3688.	937.	-4073.	314.
75.00	5382.	4777.	3749.	971.	-5630.	254.
63.75	3945.	4420.	3560.	1059.	-5981.	309.
52.50	3198.	3706.	3382.	968.	-4553.	167.
41.25	4464.	3360.	3170.	521.	-3053.	-125.
30.00	4792.	4178.	2864.	37.	-2399.	25.
18.75	3140.	3592.	2464.	-223.	-1630.	251.
7.50	1409.	2475.	1721.	-353.	-149.	-121.
356.25	-373.	1168.	528.	-401.	1396.	-457.
345.00	-2748.	-437.	-520.	-323.	2196.	-294.
333.75	-3367.	-1417.	-724.	-298.	1749.	-361.
372.50	-579.	-575.	-92.	-527.	258.	-627.
311.25	2826.	1438.	802.	-818.	-1137.	-372.

RUN 23 POINT 15

VKTS = 107.8 OMEG*R = 607.3 ALFS,C = 3.1 CLR/S,R =0.08479 CMY/S,R = 0.0939

V/OR = 0.299 RHU100 = 0.2194 CP/S = 0.002807 CDR/S,R =0.00627 CMX/S,R =-0.0060

UPPER ROTOR BLADE NORMAL BENDING MOMENT

	.1R		.2R		.3R		.6R	
HARMONIC	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-2333.8		491.3		-761.7		-1463.2	
1	-702.0	-140.2	-238.7	-506.7	-27.5	-587.7	741.3	-2374.4
2	-561.9	-765.7	-384.8	-497.1	-348.7	-275.9	-1091.6	-282.4
3	-37.6	66.7	-62.1	123.5	-27.5	63.6	26.5	81.1
4	272.6	-29.4	194.7	42.0	100.3	10.3	-292.9	-61.4
5	-526.5	304.7	-326.9	91.4	-105.3	30.4	371.4	-302.1
6	-138.5	-404.6	1.3	-291.3	-15.2	-124.7	186.8	254.5
7	207.9	153.6	90.4	77.6	35.2	-27.6	-99.5	-48.7
8	-59.9	83.8	-22.2	23.1	11.5	1.4	17.3	-27.5
9	242.8	-88.3	112.7	13.1	-1.7	-9.8	-119.8	44.3
10	-94.1	-1.3	-29.6	-18.1	-1.2	7.4	62.8	18.6

	UPPER ROTOR EDGEWISE BENDING MOMENT .1R		UPPER ROTOR PITCH LINK LOAD		UPPER ROTOR SHAFT STRESS	
HARMONIC	COS	SIN	COS	SIN	COS	SIN
0	0.0		-592.3		5546.7	
1	0.0	0.0	9.5	235.1	-3597.3	-841.2
2	0.0	0.0	-31.8	44.9	-417.9	-525.7
3	0.0	0.0	-44.1	47.6	298.3	-1.3
4	0.0	0.0	-48.4	-20.1	-188.9	409.2
5	0.0	0.0	49.6	-24.1	107.2	-255.9
6	0.0	0.0	49.8	68.8	-94.0	-57.4
7	0.0	0.0	29.3	66.0	-106.7	-270.9
8	0.0	0.0	46.1	20.9	33.0	-57.3
9	0.0	0.0	6.9	-26.7	17.7	25.7
10	0.0	0.0	-11.6	-10.7	-30.2	-10.4

RUN 23 POINT 15

VKTS =	107.8	OMEG*R =	607.3	ALFS,C =	3.1	CLR/S,R =	0.08479	CMY/S,R =	0.0939
V/OR =	0.299	RHO100 =	0.2194	CP/S =	0.002807	CDR/S,R =	0.00627	CMX/S,R =	-0.0060

LOWER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R COS	.1R SIN	.2R COS	.2R SIN	.3R COS	.3R SIN	.6R COS	.6R SIN
0	-1933.8		-661.4		-309.7		-316.3	
1	-571.6	-355.9	-231.9	55.6	-43.2	343.8	130.1	384.6
2	-747.5	220.3	-565.0	190.7	-492.4	68.1	-233.6	6.0
3	-72.5	-453.9	-67.0	-255.5	3.1	-126.2	49.1	18.4
4	239.5	69.8	195.2	-19.0	101.4	9.6	-51.6	-18.5
5	-427.4	-203.1	-271.8	-14.5	-127.7	-26.4	49.2	22.1
6	-97.6	430.4	95.5	246.3	9.9	126.6	7.6	-54.8
7	385.2	97.3	184.5	-90.0	38.1	-33.4	-35.9	-13.4
8	1.6	-88.8	-19.8	-34.9	13.6	9.1	0.7	5.2
9	-3.1	22.6	-1.1	-1.9	-4.5	-3.6	8.5	3.5
10	-11.0	106.5	24.3	44.3	-12.3	1.3	-0.6	-6.4

HARMONIC	LOWER ROTOR EDGEWISE BENDING MOMENT .1R COS	SIN	LOWER ROTOR PITCH LINK LOAD COS	SIN
0	-4365.5		-153.8	
1	1732.3	-376.7	-162.1	73.5
2	497.0	-515.0	26.1	12.5
3	44.7	-16.9	-3.9	-37.1
4	-60.4	-31.6	-4.2	-0.9
5	65.0	-26.2	5.8	3.6
6	-59.8	-116.0	38.4	8.0
7	355.8	-439.6	21.3	1.1
8	-25.9	-6.9	2.9	15.6
9	-35.8	10.1	0.5	-15.2
10	-11.1	-8.4	11.9	-11.2

RUN 23 POINT 15

VKTS = 107.8 OMEG*R = 607.3 ALFS,C = 3.1 CLR/S,R =0.08479 CMY/S,R = 0.0939

V/CP = 0.299 RHOICO = 0.2194 CP/S = 0.002807 CDR/S,R =0.00627 CMX/S,R =-0.0060

PSI	UPPER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	UR EDGEWISE BENDING .1R	UR PITCH LINK LOAD	UPPER ROTOR SHAFT STRESS
0.00	-3731.	-174.	-1142.	-1661.	0.	-537.	1568.
11.25	-3974.	-475.	-1415.	-2272.	0.	-459.	1108.
22.50	-3858.	-519.	-1458.	-2916.	0.	-533.	1469.
33.75	-3405.	-228.	-1319.	-3229.	0.	-548.	2066.
45.00	-3246.	-81.	-1276.	-2926.	0.	-353.	2191.
56.25	-3651.	-408.	-1433.	-2263.	0.	-108.	2016.
67.50	-3779.	-726.	-1528.	-2012.	0.	-111.	2435.
78.75	-2892.	-385.	-1305.	-2638.	0.	-341.	3753.
90.00	-1471.	474.	-888.	-3561.	0.	-530.	5134.
101.25	-391.	1197.	-632.	-3906.	0.	-560.	6058.
112.50	-399.	1275.	-739.	-3442.	0.	-479.	7102.
123.75	-1786.	594.	-1045.	-2514.	0.	-370.	8376.
135.00	-2963.	-133.	-1184.	-2065.	0.	-340.	8936.
146.25	-2011.	148.	-1041.	-2937.	0.	-427.	8463.
157.50	-391.	1100.	-848.	-4238.	0.	-548.	7797.
168.75	-726.	1315.	-803.	-4338.	0.	-624.	7661.
180.00	-2100.	675.	-886.	-3501.	0.	-639.	8130.
191.25	-2590.	199.	-1032.	-2844.	0.	-650.	8834.
202.50	-2867.	36.	-1115.	-2130.	0.	-707.	9152.
213.75	-3309.	-85.	-995.	-1110.	0.	-738.	8866.
225.00	-2811.	182.	-713.	-417.	0.	-712.	8388.
236.25	-1949.	772.	-423.	116.	0.	-762.	7933.
247.50	-1897.	1083.	-146.	1005.	0.	-851.	7379.
258.75	-1780.	1272.	133.	1650.	0.	-772.	6903.
270.00	-1182.	1680.	318.	1768.	0.	-672.	6732.
281.25	-1357.	1806.	350.	2057.	0.	-809.	6582.
292.50	-2089.	1429.	261.	2321.	0.	-914.	5969.
303.75	-2024.	1159.	52.	1766.	0.	-717.	4799.
315.00	-1644.	1129.	-229.	795.	0.	-586.	3559.
326.25	-2077.	877.	-457.	123.	0.	-796.	2922.
337.50	-2911.	428.	-612.	-431.	0.	-963.	2807.
348.75	-3418.	102.	-823.	-1072.	0.	-796.	2408.

RUN 23 POINT 15
VKTS = 107.8 OMEG*R = 607.3 ALFS,C = 3.1 CLR/S,R =0.08479 CMY/S,R = 0.0939
V/CR = 0.299 RHU100 = 0.2194 CP/S = 0.002807 CDR/S,R =0.00627 CMX/S,R =-0.0060

PSI	LOWER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	LR EDGEWISE BENDING .1R	LR PITCH LINK LOAD
300.00	-1917.	-570.	-519.	-486.	-2456.	-294.
288.75	-2634.	-1026.	-610.	-373.	-3446.	-326.
277.50	-1908.	-988.	-414.	-428.	-4624.	-332.
266.25	-73.	-69.	-65.	-599.	-4947.	-318.
255.00	383.	612.	63.	-630.	-4798.	-229.
243.75	-1024.	151.	-151.	-492.	-5167.	-119.
232.50	-2118.	-736.	-535.	-428.	-5938.	-74.
221.25	-1768.	-1034.	-774.	-551.	-6129.	-58.
210.00	-837.	-661.	-664.	-751.	-5607.	-19.
198.75	-455.	-164.	-407.	-893.	-5356.	37.
187.50	-1112.	-180.	-397.	-887.	-5843.	73.
176.25	-2191.	-768.	-651.	-732.	-6238.	41.
165.00	-2718.	-1261.	-840.	-531.	-5739.	-16.
153.75	-2859.	-1335.	-758.	-345.	-4863.	-9.
142.50	-2983.	-1269.	-462.	-155.	-4761.	3.
131.25	-2523.	-1013.	-115.	5.	-5529.	-45.
120.00	-1551.	-422.	194.	91.	-5960.	-43.
108.75	-1013.	106.	495.	150.	-5357.	3.
97.50	-968.	315.	735.	225.	-4704.	-60.
86.25	-1080.	331.	745.	275.	-5013.	-153.
75.00	-1517.	121.	527.	261.	-5536.	-118.
63.75	-1999.	-265.	263.	204.	-5042.	-84.
52.50	-2244.	-562.	5.	132.	-3850.	-171.
41.25	-2758.	-873.	-269.	40.	-3198.	-269.
30.00	-3363.	-1288.	-478.	-99.	-3353.	-314.
18.75	-3299.	-1437.	-604.	-265.	-3412.	-316.
7.50	-3083.	-1316.	-735.	-371.	-2639.	-252.
356.25	-3355.	-1365.	-857.	-397.	-1541.	-221.
345.00	-3342.	-1502.	-878.	-425.	-1325.	-317.
333.75	-2553.	-1327.	-764.	-500.	-2130.	-375.
322.50	-1664.	-877.	-559.	-579.	-2716.	-297.
311.25	-1356.	-498.	-433.	-588.	-2481.	-249.

RUN 23 POINT 16
VKTS = 142.6 OMEG*R = 607.3 ALFS,C = 2.8 CLR/S,R =0.07811 CMY/S,R = 0.0933
V/OR = 0.396 RHO100 = 0.2176 CP/S = 0.002998 CDR/S,R =0.00711 CMX/S,R =-0.0060

UPPER ROTOR BLADE NORMAL BENDING MOMENT

	.1R		.2R		.3R		.6R	
HARMONIC	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-3080.6		-109.3		-1168.4		-1860.7	
1	621.9	778.9	716.3	81.0	692.7	-277.9	1833.9	-2635.0
2	-2130.1	-1188.5	-1442.8	-855.6	-1100.1	-473.1	-2262.9	-495.5
3	-318.7	183.1	-170.9	36.3	-71.5	50.4	514.3	90.9
4	-177.2	-863.4	86.9	-502.1	55.6	-242.4	254.4	718.5
5	-358.8	586.0	-277.5	267.1	-104.8	130.2	264.9	-440.3
6	-89.4	-476.7	50.3	-300.1	-8.1	-165.6	102.2	268.9
7	329.6	39.4	152.2	67.0	24.4	5.3	-186.7	-32.4
8	2.2	182.8	-29.2	63.3	12.7	-13.6	5.0	-147.0
9	-105.2	6.7	-29.8	-21.1	17.4	-4.6	61.3	-38.6
10	-68.9	31.5	-45.0	8.1	-3.4	3.9	66.5	-92.2

	UPPER ROTOR EDGEWISE BENDING MOMENT .1R		UPPER ROTOR PITCH LINK LOAD		UPPER ROTOR SHAFT STRESS	
HARMONIC	COS	SIN	COS	SIN	COS	SIN
0	0.0		-605.3		5620.0	
1	0.0	0.0	71.6	198.8	-3066.4	-187.5
2	0.0	0.0	-26.3	116.2	-533.8	-914.4
3	0.0	0.0	7.3	-8.9	263.5	-245.5
4	0.0	0.0	-3.8	53.4	-183.1	896.9
5	0.0	0.0	60.4	-37.0	150.8	-306.3
6	0.0	0.0	15.6	36.0	-36.3	17.2
7	0.0	0.0	18.4	84.6	-68.5	-186.2
8	0.0	0.0	40.5	8.7	184.7	-99.4
9	0.0	0.0	26.8	-5.9	52.6	-27.4
10	0.0	0.0	-12.9	-39.8	-68.3	-4.0

RUN 23 POINT 16

VKTS =	142.6	OMEG*R =	607.3	ALFS,C =	2.8	CLR/S,R =0.07811	CMY/S,R = 0.0933
V/CR =	0.396	RHO100 =	0.2176	CP/S =	0.002998	CDR/S,R =0.00711	CMX/S,R =-0.0060

LOWER ROTOR BLADE NORMAL BENDING MOMENT

	.1R		.2R		.3R		.6R	
HARMONIC	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-2670.3		-1170.6		-673.9		-386.8	
1	-721.9	-744.2	-291.4	-81.8	30.1	355.1	226.8	501.7
2	-2566.9	123.8	-1937.2	278.2	-1497.9	-9.2	-502.1	-84.7
3	-155.6	-452.7	-159.2	-237.4	-46.2	-120.7	79.6	49.1
4	-372.5	587.6	-17.8	368.7	28.1	144.3	35.6	-106.0
5	-479.8	-315.7	-306.7	-36.9	-125.2	-28.9	59.6	25.7
6	-318.7	486.6	-7.4	343.1	-18.4	154.9	17.5	-45.0
7	280.1	136.4	173.3	-72.7	69.8	-43.9	-28.5	-0.1
8	-47.5	-144.6	-32.9	-27.9	26.4	11.2	3.7	13.8
9	-352.5	-229.0	-154.0	33.3	17.4	-2.9	33.7	15.6
10	-117.4	100.5	-1.7	60.2	-11.3	-4.3	6.5	-6.4

	LOWER ROTOR EDGEWISE BENDING MOMENT .1R		LOWER ROTOR PITCH LINK LOAD	
HARMONIC	COS	SIN	COS	SIN
0	-4261.7		-180.7	
1	1630.7	-318.1	-194.3	-0.3
2	1728.1	-735.6	79.7	29.2
3	231.9	295.1	24.2	23.3
4	-54.9	25.0	-24.5	17.5
5	36.1	30.3	-14.3	9.7
6	19.5	-77.7	27.0	9.5
7	646.0	-442.9	1.3	-1.5
8	-53.3	-59.7	-9.1	-4.3
9	44.8	-54.9	-14.2	16.2
10	-15.1	-4.6	-11.8	13.0

RUN 23 POINT 16

VKTS = 142.6 OMEG*R = 607.3 ALFS,C = 2.8 CLR/S,R =0.07611 CMY/S,R = 0.0933

V/CR = 0.396 RHO100 = 0.2176 CP/S = 0.002998 CDR/S,R =0.00711 CMX/S,R =-0.0060

PSI	UPPER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	UR EDGEWISE BENDING .1R	UR PITCH LINK LOAD	UPPER ROTOR SHAFT STRESS
0.00	-5375.	-1099.	-1653.	-1208.	0.	-408.	2315.
11.25	-5459.	-1488.	-2017.	-1997.	0.	-346.	1841.
22.50	-5137.	-1495.	-1969.	-2385.	0.	-405.	1980.
33.75	-4095.	-1014.	-1549.	-2909.	0.	-469.	2491.
45.00	-2261.	-31.	-1131.	-3802.	0.	-389.	2603.
56.25	-1209.	710.	-917.	-3743.	0.	-205.	2345.
67.50	-1454.	792.	-722.	-2736.	0.	-199.	2830.
78.75	-1167.	957.	-418.	-2346.	0.	-365.	4490.
90.00	182.	1610.	-196.	-2679.	0.	-465.	6170.
101.25	563.	1917.	-289.	-2643.	0.	-491.	7236.
112.50	-1011.	1176.	-734.	-2147.	0.	-482.	8430.
123.75	-2840.	-95.	-1363.	-2102.	0.	-440.	9578.
135.00	-3056.	-756.	-1812.	-3403.	0.	-540.	9419.
146.25	-2032.	-419.	-1860.	-5773.	0.	-751.	8086.
157.50	-1775.	-23.	-1804.	-7443.	0.	-791.	6999.
168.75	-3332.	-594.	-2112.	-7317.	0.	-737.	6904.
180.00	-5713.	-1879.	-2770.	-6183.	0.	-777.	7651.
191.25	-7492.	-2978.	-3309.	-4849.	0.	-722.	8572.
202.50	-7944.	-3364.	-3326.	-3538.	0.	-549.	8815.
213.75	-6850.	-2803.	-2766.	-2711.	0.	-534.	8308.
225.00	-4902.	-1515.	-1899.	-2132.	0.	-652.	7502.
236.25	-3377.	-292.	-1100.	-901.	0.	-768.	6455.
247.50	-2596.	454.	-525.	816.	0.	-887.	5590.
258.75	-2170.	929.	-95.	2364.	0.	-835.	5708.
270.00	-2116.	1162.	219.	3665.	0.	-625.	6349.
281.25	-2146.	1191.	358.	4210.	0.	-687.	6452.
292.50	-1693.	1353.	336.	3482.	0.	-933.	6105.
303.75	-1209.	1555.	215.	2179.	0.	-852.	5555.
315.00	-1386.	1400.	-4.	895.	0.	-663.	4428.
326.25	-2029.	992.	-322.	-365.	0.	-802.	3177.
337.50	-3052.	465.	-704.	-974.	0.	-920.	2734.
348.75	-4444.	-317.	-1151.	-868.	0.	-681.	2721.

RUN 23 POINT 16

VKTS = 142.6 OMEG*R = 607.3 ALFS,C = 2.8 CLR/S,R =0.07811 CMY/S,R = 0.0933

V/OR = 0.396 RHO100 = 0.2176 CP/S = 0.002998 CDR/S,R =0.00711 CMX/S,R =-0.0060

PSI	LOWER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	LR EDGEWISE BENDING .1R	LR PITCH LINK LOAD
300.00	-523.	174.	-124.	-574.	-2773.	-270.
288.75	-1687.	-155.	-17.	-309.	-4499.	-324.
277.50	-720.	-148.	245.	-253.	-5814.	-372.
266.25	1446.	875.	468.	-424.	-5771.	-264.
255.00	847.	1229.	352.	-498.	-5307.	-130.
243.75	-1411.	115.	-162.	-497.	-5652.	-67.
232.50	-1972.	-983.	-877.	-688.	-6500.	-24.
221.25	-1476.	-1207.	-1385.	-1028.	-6418.	6.
210.00	-1555.	-1145.	-1468.	-1310.	-5179.	20.
198.75	-2066.	-1242.	-1476.	-1451.	-4406.	50.
187.50	-3340.	-1763.	-1796.	-1381.	-4904.	76.
176.25	-5283.	-2798.	-2207.	-1077.	-5175.	75.
165.00	-6029.	-3509.	-2243.	-715.	-4135.	49.
153.75	-4994.	-3114.	-1787.	-447.	-3179.	-4.
142.50	-3623.	-2094.	-1033.	-219.	-3820.	-33.
131.25	-2454.	-1142.	-241.	24.	-5267.	-18.
120.00	-1123.	-231.	433.	220.	-5903.	-62.
108.75	-201.	653.	993.	364.	-5691.	-184.
97.50	-452.	1071.	1365.	525.	-5795.	-271.
86.25	-1356.	796.	1331.	655.	-6600.	-323.
75.00	-1640.	232.	904.	616.	-7073.	-367.
63.75	-2059.	-201.	385.	407.	-6148.	-327.
52.50	-2901.	-698.	-86.	155.	-4262.	-260.
41.25	-3842.	-1427.	-610.	-108.	-2923.	-276.
30.00	-4104.	-2006.	-1185.	-377.	-2681.	-269.
18.75	-4967.	-2475.	-1677.	-508.	-2345.	-200.
7.50	-6880.	-3330.	-2032.	-470.	-988.	-239.
356.25	-7411.	-4064.	-2259.	-469.	196.	-346.
345.00	-5843.	-3785.	-2244.	-567.	-414.	-352.
333.75	-4226.	-2830.	-1708.	-621.	-2042.	-344.
322.50	-2666.	-1746.	-994.	-651.	-2638.	-389.
311.25	-737.	-514.	-350.	-697.	-2266.	-345.

RUN 23 POINT 17

VKTS = 143.0 OMEG*R = 604.7 ALFS,C = 2.9 CLR/S,R =0.10987 CMY/S,R = 0.1176

V/OR = 0.399 RHO100 = 0.2157 CP/S = 0.004461 CDR/S,R =0.00754 CMX/S,R =-0.0070

UPPER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R COS	.1R SIN	.2R COS	.2R SIN	.3R COS	.3R SIN	.6R COS	.6R SIN
0	-6.7		2047.4		359.0		-784.7	
1	-298.4	5750.5	-142.8	3465.1	147.9	2029.7	1277.4	-635.2
2	-1862.6	-1295.1	-1308.8	-934.2	-1002.0	-521.0	-2110.9	-314.9
3	-368.4	211.7	-229.8	64.8	-119.8	80.8	277.6	57.8
4	-367.5	-1172.0	29.9	-698.4	9.9	-294.4	380.2	1084.8
5	-279.4	619.7	-247.3	280.3	-95.4	105.1	221.2	-470.6
6	-148.1	-563.7	24.9	-365.0	-26.9	-201.5	144.5	323.0
7	304.0	-49.5	162.6	18.0	19.0	-16.6	-158.2	21.5
8	29.4	62.6	-7.5	42.6	-8.0	3.0	-16.1	-55.6
9	-256.3	51.0	-36.0	-27.8	26.7	5.7	144.6	-89.1
10	-66.9	-44.9	-24.9	-20.4	-13.6	15.9	64.6	-57.8

HARMONIC	UPPER ROTOR EDGEWISE BENDING MOMENT .1R COS	SIN	UPPER ROTOR PITCH LINK LOAD COS	SIN	UPPER ROTOR SHAFT STRESS COS	SIN
0	0.0		-599.9		6135.4	
1	0.0	0.0	105.3	236.0	-3678.8	1375.9
2	0.0	0.0	-15.5	156.9	-549.0	-737.1
3	0.0	0.0	0.4	-32.3	448.4	-128.9
4	0.0	0.0	-12.4	55.6	35.5	861.2
5	0.0	0.0	10.9	-61.5	59.2	-288.4
6	0.0	0.0	3.7	30.9	-19.6	27.2
7	0.0	0.0	-29.1	-0.5	-115.2	-177.2
8	0.0	0.0	43.3	17.8	46.7	-66.9
9	0.0	0.0	42.3	22.0	26.5	-9.3
10	0.0	0.0	-8.3	-5.3	-71.4	22.0

AD-A110 278 NATIONAL AERONUATICS AND SPACE ADMINISTRATION MOFFET--ETC F/G 20/4
PERFORMANCE AND LOADS DATA FROM A WIND TUNNEL TEST OF A FULL-SC--ETC(U)
OCT 81 F F FELKER

UNCLASSIFIED NASA-A-8732 NASA-TM-81329 NL

3 OF 4
AD A
110278

1.0 2.8 2.5

2.2

2.0

1.1

1.8

1.25 1.4 1.6

RUN 23 POINT 17
VKTS = 143.0 UMEG*R = 604.7 ALFS,C = 2.9 CLR/S,R =0.10987 CMY/S,R = 0.1176
V/OR = 0.399 RHO100 = 0.2157 CP/S = 0.004461 CDR/S,R =0.00754 CMX/S,R =-0.0070

LOWER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R COS	.1R SIN	.2R COS	.2R SIN	.3R COS	.3R SIN	.6R COS	.6R SIN
0	680.1		1242.6		989.1		-165.7	
1	-224.3	-4740.3	-197.8	-2886.6	122.5	-1567.5	226.6	210.2
2	-2754.3	603.4	-2010.7	669.7	-1575.0	295.4	-527.1	7.4
3	-244.0	-487.0	-214.4	-249.1	-65.1	-133.8	84.5	67.7
4	-668.3	827.6	-152.5	562.7	-67.4	219.9	74.3	-144.2
5	-319.5	-90.5	-186.0	45.8	-93.2	33.1	39.3	1.6
6	-262.3	742.4	90.3	444.7	12.8	212.7	8.2	-66.7
7	349.2	225.6	226.8	-57.5	82.5	-43.7	-33.6	-7.3
8	-57.7	-178.6	-62.9	-40.8	8.3	-13.5	8.0	15.9
9	-441.4	-206.2	-178.8	61.1	21.9	-12.1	38.3	17.8
10	-106.8	88.9	11.5	50.4	1.9	-12.3	7.4	-0.6

HARMONIC	LOWER ROTOR EDGEWISE BENDING MOMENT .1R COS	SIN	LOWER ROTOR PITCH LINK LOAD COS	SIN
0	-4028.2		-117.4	
1	2698.6	1185.9	-192.2	13.0
2	1281.5	-1153.6	85.4	81.2
3	335.7	215.2	16.7	64.9
4	54.8	-22.1	-47.3	23.6
5	52.1	81.8	1.8	20.1
6	-34.3	-132.0	38.8	41.6
7	588.5	-339.9	-23.8	3.0
8	-73.4	-25.5	-44.5	7.4
9	100.0	-81.7	-62.4	54.6
10	-23.0	-32.5	-34.1	10.3

RUN 23 POINT 17
VKTS = 143.0 OMEG*R = 604.7 ALFS,C = 2.9 CLR/S,R =0.10987 CMY/S,R = 0.1176
V/OR = 0.399 RHO100 = 0.2157 CP/S = 0.004461 CDR/S,R =0.00754 CMX/S,R =-0.0070

PSI	UPPER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	UR EDGEWISE BENDING .1R	UR PITCH LINK LOAD	UPPER ROTOR SHAFT STRESS
0.00	-3321.	218.	-703.	-560.	0.	-459.	2318.
11.25	-2731.	229.	-632.	-601.	0.	-384.	2523.
22.50	-1079.	993.	-104.	-645.	0.	-383.	3017.
33.75	1069.	2309.	840.	-877.	0.	-265.	3440.
45.00	3743.	39[illegible].	1760.	-1489.	0.	-144.	3586.
56.25	5641.	5312.	2293.	-1251.	0.	-197.	3701.
67.50	5870.	5786.	2664.	-51.	0.	-277.	4576.
78.75	6366.	6149.	3139.	473.	0.	-253.	6423.
90.00	7992.	7013.	3480.	207.	0.	-320.	8242.
101.25	8221.	7373.	3423.	496.	0.	-505.	9538.
112.50	6191.	6398.	2996.	1142.	0.	-528.	10801.
123.75	4572.	5061.	2342.	721.	0.	-426.	11632.
135.00	4735.	4575.	1789.	-1180.	0.	-537.	11116.
146.25	5206.	4752.	1595.	-3656.	0.	-812.	9739.
157.50	4538.	4591.	1358.	-5337.	0.	-929.	8666.
168.75	2207.	3399.	538.	-5368.	0.	-857.	8372.
180.00	-1524.	1304.	-660.	-4085.	0.	-719.	8838.
191.25	-4954.	-802.	-1649.	-2598.	0.	-571.	9435.
202.50	-6232.	-1940.	-2154.	-1910.	0.	-535.	9200.
213.75	-5548.	-1855.	-2121.	-2132.	0.	-638.	8217.
225.00	-4516.	-1135.	-1685.	-2264.	0.	-703.	7223.
236.25	-4004.	-524.	-1245.	-1523.	0.	-723.	6284.
247.50	-3833.	-237.	-1026.	-282.	0.	-833.	5492.
258.75	-3979.	-157.	-877.	1160.	0.	-892.	5315.
270.00	-4526.	-256.	-673.	2755.	0.	-778.	5473.
281.25	-4666.	-331.	-498.	3486.	0.	-746.	5315.
292.50	-3712.	-26.	-447.	2679.	0.	-905.	4782.
303.75	-2646.	443.	-497.	1365.	0.	-949.	3856.
315.00	-2401.	625.	-500.	209.	0.	-793.	2662.
326.25	-2265.	711.	-390.	-1074.	0.	-718.	2014.
337.50	-2030.	874.	-351.	-1744.	0.	-757.	2177.
348.75	-2595.	688.	-515.	-1175.	0.	-662.	2363.

RUN 23	POINT 17					
VKTS =	143.0	OMEG*R = 604.7	ALFS,C = 2.9	CLR/S,R =0.10987	CMY/S,R = 0.1176	
V/OR =	0.399	RHO100 = 0.2157	CP/S = 0.004461	CDR/S,R =0.00754	CMX/S,R =-0.0070	

	LOWER ROTOR BLADE NORMAL BENDING MOMENT				LR EDGEWISE	LR PITCH
PSI	.1R	.2R	.3R	.6R	BENDING .1R	LINK LOAD
300.00	7057.	5330.	3277.	-265.	-3136.	-164.
288.75	5529.	5029.	3420.	136.	-4854.	-229.
277.50	6161.	4799.	3651.	316.	-6171.	-381.
266.25	8516.	5826.	3948.	213.	-6672.	-244.
255.00	8091.	6385.	3982.	141.	-6776.	-15.
243.75	5577.	5249.	3482.	96.	-7251.	55.
232.50	4746.	3932.	2601.	-164.	-8180.	52.
221.25	5049.	3534.	1863.	-594.	-8332.	81.
210.00	4221.	3228.	1440.	-957.	-7206.	113.
198.75	2344.	2341.	899.	-1137.	-6375.	113.
187.50	-246.	892.	-28.	-1096.	-6631.	119.
176.25	-3245.	-959.	-986.	-856.	-6311.	148.
165.00	-4905.	-2379.	-1478.	-582.	-4551.	104.
153.75	-4425.	-2498.	-1370.	-415.	-3143.	16.
142.50	-3297.	-1767.	-875.	-287.	-3458.	63.
131.25	-2549.	-1083.	-291.	-100.	-4344.	123.
120.00	-1783.	-478.	231.	97.	-4281.	-48.
108.75	-1120.	191.	677.	265.	-3580.	-246.
97.50	-1284.	529.	1009.	467.	-3498.	-267.
86.25	-1847.	384.	1136.	640.	-4252.	-300.
75.00	-1703.	219.	1002.	616.	-4780.	-309.
63.75	-1358.	218.	676.	435.	-4186.	-127.
52.50	-2000.	-42.	352.	262.	-2793.	-80.
41.25	-2574.	-525.	142.	45.	-1705.	-245.
30.00	-1837.	-589.	-64.	-256.	-1440.	-131.
18.75	-1684.	-438.	-315.	-403.	-1129.	104.
7.50	-3304.	-919.	-499.	-310.	99.	-121.
356.25	-3986.	-1589.	-573.	-228.	1153.	-449.
345.00	-2232.	-1242.	-417.	-260.	414.	-363.
333.75	264.	122.	332.	-295.	-1300.	-286.
322.50	3198.	1982.	1641.	-372.	-2062.	-451.
311.25	6390.	4080.	2787.	-453.	-2169.	-390.

RUN 23 POINT 18
VKTS = 143.2 OMEG*R = 605.4 ALFS,C = 2.9 CLR/S,R =0.09291 CMY/S,R = 0.1037
V/OR = 0.399 RHO100 = 0.2149 CP/S = 0.003489 CDR/S,R =0.00717 CMX/S,R =-0.0059

UPPER ROTOR BLADE NORMAL BENDING MOMENT

	.1R		.2R		.3R		.6R	
HARMONIC	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-1570.9		974.9		-383.3		-1339.5	
1	187.4	3354.7	297.3	1821.0	415.6	907.4	1479.2	-1647.3
2	-2021.6	-1045.6	-1391.6	-756.9	-1059.6	-396.3	-2168.1	-206.3
3	-302.6	256.8	-176.8	76.4	-78.0	69.4	392.2	24.4
4	-451.9	-972.8	-36.2	-611.5	-6.2	-273.7	468.1	857.5
5	-212.1	643.9	-202.5	320.1	-70.9	133.5	152.3	-493.8
6	-218.9	-488.9	-29.5	-326.4	-57.8	-172.8	207.6	261.0
7	342.7	-75.0	174.0	20.1	24.6	-13.8	-175.0	24.5
8	37.0	146.9	-10.4	60.5	7.5	-5.5	-12.5	-90.8
9	-105.0	137.6	-51.2	18.7	21.4	-14.8	45.9	-114.4
10	-28.4	28.7	-18.6	9.5	-9.9	12.7	46.8	-87.4

	UPPER ROTOR EDGEWISE BENDING MOMENT .1R		UPPER ROTOR PITCH LINK LOAD		UPPER ROTOR SHAFT STRESS	
HARMONIC	COS	SIN	COS	SIN	COS	SIN
0	0.0		-631.9		6031.5	
1	0.0	0.0	95.2	213.3	-3134.7	1816.4
2	0.0	0.0	-13.0	135.1	-532.5	-856.6
3	0.0	0.0	-2.4	-26.1	327.4	-86.4
4	0.0	0.0	-2.3	59.0	73.6	846.0
5	0.0	0.0	15.9	-52.4	70.8	-310.9
6	0.0	0.0	19.6	34.4	-8.6	70.6
7	0.0	0.0	31.2	43.9	-131.0	-107.1
8	0.0	0.0	41.2	6.1	120.3	-118.0
9	0.0	0.0	29.4	-2.4	20.3	-51.6
10	0.0	0.0	-23.9	-12.3	-78.5	9.2

RUN 23 POINT 18

VKTS =	143.2	OMEG*R =	605.4	ALFS,C =	2.9	CLR/S,R =	0.09291	CMY/S,R =	0.1037
V/OR =	0.399	RHO100 =	0.2149	CP/S =	0.003489	CDR/S,R =	0.00717	CMX/S,R =	-0.0059

LOWER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R COS	.1R SIN	.2R COS	.2R SIN	.3R COS	.3R SIN	.6R COS	.6R SIN
0	-1315.3		-167.4		32.1		-290.4	
1	-255.6	-2115.3	-61.1	-1050.0	181.4	-298.6	230.8	408.6
2	-2740.1	182.3	-2041.9	349.6	-1576.3	47.4	-523.8	-63.2
3	-196.6	-503.4	-186.9	-257.9	-55.4	-127.3	84.0	70.3
4	-575.1	554.3	-141.5	403.0	-33.8	161.1	64.4	-101.0
5	-411.9	-235.5	-261.6	-4.5	-118.2	3.7	52.3	16.7
6	-398.7	563.7	-26.1	406.4	-38.2	189.3	23.9	-56.4
7	292.5	286.4	223.4	-2.9	75.3	-19.7	-31.1	-15.4
8	-22.2	-107.3	-25.0	-28.8	12.6	2.9	-1.5	8.6
9	-267.4	-314.7	-158.3	-2.1	18.8	5.9	29.3	28.6
10	-101.2	55.1	-18.9	51.4	-8.5	-5.5	4.5	-2.3

HARMONIC	LOWER ROTOR EDGEWISE BENDING MOMENT .1R COS	SIN	LOWER ROTOR PITCH LINK LOAD COS	SIN
0	-4103.6		-157.9	
1	2037.7	248.4	-192.5	0.2
2	1694.0	-949.4	75.8	53.2
3	298.7	285.9	12.3	44.7
4	6.2	-12.0	-41.8	9.7
5	33.4	41.0	-13.4	8.3
6	21.4	-104.2	35.5	21.7
7	819.2	-295.8	-5.6	-4.1
8	-56.2	-65.5	-12.3	-8.0
9	80.4	-40.5	-35.8	19.1
10	4.3	15.1	-15.0	8.1

RUN 23 POINT 18
VKTS = 143.2 OMEG*R = 605.4 ALFS,C = 2.9 CLR/S,R =0.09291 CMY/S,R = 0.1037
V/OR = 0.399 RHO100 = 0.2149 CP/S = 0.003489 CDR/S,R =0.00717 CMX/S,R =-0.0059

PSI	UPPER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	UR EDGEWISE BENDING .1R	UR PITCH LINK LOAD	UPPER ROTOR SHAFT STRESS
0.00	-4344.	-471.	-1197.	-903.	0.	-441.	2759.
11.25	-3902.	-517.	-1281.	-1341.	0.	-384.	2944.
22.50	-2987.	-114.	-903.	-1515.	0.	-440.	3491.
33.75	-1110.	879.	-182.	-1995.	0.	-412.	3945.
45.00	1303.	2259.	447.	-2702.	0.	-263.	4066.
56.25	2365.	3161.	783.	-2294.	0.	-198.	4245.
67.50	2137.	3349.	1082.	-1191.	0.	-297.	5202.
78.75	2777.	3688.	1483.	-980.	0.	-389.	6940.
90.00	4238.	4431.	1716.	-1275.	0.	-435.	8492.
101.25	4167.	4575.	1560.	-940.	0.	-500.	9581.
112.50	2273.	3585.	1062.	-465.	0.	-497.	10808.
123.75	812.	2358.	424.	-952.	0.	-479.	11671.
135.00	1030.	1971.	5.	-2732.	0.	-641.	11055.
146.25	1791.	2310.	-54.	-5129.	0.	-842.	9468.
157.50	1331.	2312.	-211.	-6587.	0.	-865.	8315.
168.75	-973.	1240.	-892.	-6172.	0.	-825.	8077.
180.00	-4165.	-552.	-1822.	-4692.	0.	-780.	8453.
191.25	-6493.	-2073.	-2486.	-3365.	0.	-634.	8745.
202.50	-6894.	-2584.	-2651.	-2649.	0.	-543.	8269.
213.75	-5637.	-2065.	-2284.	-2422.	0.	-635.	7265.
225.00	-4523.	-1100.	-1608.	-2048.	0.	-737.	6254.
236.25	-3583.	-285.	-1052.	-999.	0.	-811.	5174.
247.50	-3108.	199.	-737.	449.	0.	-898.	4433.
258.75	-3246.	369.	-465.	1978.	0.	-839.	4689.
270.00	-3671.	305.	-225.	3334.	0.	-716.	5198.
281.25	-3499.	324.	-139.	3674.	0.	-825.	4985.
292.50	-2715.	608.	-165.	2751.	0.	-976.	4461.
303.75	-2210.	858.	-226.	1476.	0.	-853.	3901.
315.00	-2138.	873.	-323.	201.	0.	-713.	2937.
326.25	-2239.	787.	-441.	-1049.	0.	-813.	2165.
337.50	-2900.	527.	-603.	-1409.	0.	-869.	2310.
348.75	-3957.	-12.	-881.	-922.	0.	-673.	2708.

RUN 23 POINT 18

VKTS = 143.2 OMEG*R = 605.4 ALFS,C = 2.9 CLR/S,R =0.09291 CMY/S,R = 0.1037

V/OR = 0.399 RHO100 = 0.2149 CP/S = 0.003489 CDR/S,R =0.00717 CMX/S,R =-0.0059

PSI	LOWER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	LR EDGEWISE BENDING .1R	LR PITCH LINK LOAD
300.00	2125.	2239.	1273.	-394.	-2882.	-221.
288.75	942.	1729.	1357.	-69.	-4832.	-307.
277.50	2241.	1829.	1595.	-24.	-6120.	-376.
266.25	4206.	2917.	1833.	-183.	-5974.	-230.
255.00	3237.	3106.	1729.	-236.	-5654.	-65.
243.75	1027.	1870.	1148.	-275.	-6384.	-16.
232.50	537.	786.	331.	-536.	-7386.	11.
221.25	779.	504.	-244.	-911.	-7080.	40.
210.00	270.	345.	-452.	-1197.	-5685.	37.
198.75	-825.	-122.	-722.	-1339.	-5045.	50.
187.50	-2734.	-1086.	-1311.	-1270.	-5588.	100.
176.25	-4981.	-2411.	-1859.	-974.	-5481.	116.
165.00	-5644.	-3166.	-1953.	-652.	-3898.	56.
153.75	-4553.	-2776.	-1565.	-440.	-2786.	-6.
142.50	-3397.	-1856.	-882.	-230.	-3639.	16.
131.25	-2481.	-1019.	-135.	32.	-5019.	33.
120.00	-1188.	-168.	503.	233.	-5167.	-78.
108.75	-275.	676.	1028.	377.	-4674.	-224.
97.50	-610.	1056.	1412.	560.	-4954.	-292.
86.25	-1289.	844.	1462.	692.	-5962.	-336.
75.00	-1259.	513.	1141.	618.	-6425.	-336.
63.75	-1316.	301.	681.	411.	-5409.	-229.
52.50	-2300.	-170.	247.	210.	-3523.	-174.
41.25	-3068.	-883.	-181.	-32.	-2412.	-231.
30.00	-2981.	-1258.	-605.	-309.	-2394.	-200.
18.75	-3694.	-1513.	-985.	-431.	-1840.	-130.
7.50	-5458.	-2302.	-1326.	-380.	-94.	-242.
356.25	-5856.	-3012.	-1566.	-366.	974.	-379.
345.00	-4249.	-2651.	-1450.	-439.	-43.	-351.
333.75	-2104.	-1446.	-761.	-512.	-1731.	-347.
322.50	366.	105.	262.	-601.	-2203.	-411.
311.25	2443.	1664.	1024.	-626.	-2004.	-329.

RUN 24 POINT 6

VKTS =	140.9	OMEG*R =	590.9	ALFS,C =	5.3	CLR/S,R =	0.07855	CMY/S,R =	0.1258
V/OR =	0.403	RHO100 =	0.2204	CP/S =	0.002754	CDR/S,R =	0.01014	CMX/S,R =	-0.0126

UPPER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R COS	.1R SIN	.2R COS	.2R SIN	.3R COS	.3R SIN	.6R COS	.6R SIN
0	-4555.2		-1293.5		-2095.9		-2473.8	
1	2478.0	-1951.5	2126.9	-1737.2	1669.7	-1537.1	2757.4	-3777.3
2	-2150.1	-1814.8	-1423.9	-1289.6	-1104.8	-804.5	-2315.5	-1396.2
3	-274.9	-61.1	-111.6	-78.3	-41.9	-0.1	545.1	403.6
4	120.9	-1081.7	321.1	-536.0	176.6	-240.0	78.8	897.3
5	-706.6	765.0	-473.5	352.6	-200.4	204.2	597.3	-574.9
6	162.1	-836.7	255.3	-460.5	70.9	-266.7	-15.6	538.1
7	485.8	204.2	178.7	127.3	37.7	-39.0	-297.8	-118.6
8	-139.5	339.8	-80.7	93.8	36.6	-3.8	74.6	-267.7
9	-282.9	54.2	-92.8	-52.3	9.5	-19.9	156.9	-93.3
10	-27.5	67.3	-26.9	-2.1	12.6	-21.6	111.8	-100.5

HARMONIC	UPPER ROTOR EDGEWISE BENDING MOMENT .1R COS	SIN	UPPER ROTOR PITCH LINK LOAD COS	SIN	UPPER ROTOR SHAFT STRESS COS	SIN
0	-4760.9		-303.9		1482.4	
1	837.4	1083.2	31.7	205.9	-3287.6	-4718.7
2	393.8	2074.7	-0.3	90.5	-672.9	-799.9
3	36.6	141.1	-13.8	-1.4	492.4	-390.6
4	-183.2	23.0	-41.9	17.2	65.3	1071.7
5	-0.3	-3.0	104.2	-22.5	379.6	-614.6
6	-27.5	-56.4	27.1	59.3	10.5	48.8
7	-34.0	-329.8	8.1	80.3	-289.0	-477.0
8	-106.7	-47.5	19.2	51.3	291.6	-92.8
9	34.8	48.1	-9.3	-27.0	92.3	-32.0
10	77.0	-6.7	6.4	-34.4	-75.5	-3.2

RUN 24 POINT 6
VKTS = 140.9 OMEG*R = 590.9 ALFS,C = 5.3 CLR/S,R =0.07855 CMY/S,R = 0.1258
V/OR = 0.403 RHO100 = 0.2204 CP/S = 0.002754 CDR/S,R =0.01014 CMX/S,R =-0.0126

LOWER ROTOR BLADE NORMAL BENDING MOMENT

	.1R		.2R		.3R		.6R	
HARMONIC	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-405.8		47.3		190.9		-310.7	
1	-3139.6	-975.0	-1989.1	-65.8	-1146.8	343.0	43.1	522.8
2	-3192.4	185.7	-2380.1	393.7	-1889.8	47.7	-673.2	-105.2
3	-148.6	-327.6	-125.1	-162.7	-38.6	-77.9	43.3	38.4
4	-199.8	1167.5	185.0	658.4	91.3	286.0	-12.4	-210.7
5	-402.5	25.7	-193.9	144.0	-97.4	84.8	47.8	-14.7
6	-282.1	545.7	21.1	352.8	-13.1	160.6	15.5	-55.2
7	229.7	165.1	174.9	-55.0	80.2	-82.7	-19.7	-11.3
8	-183.9	-152.3	-100.4	0.4	0.9	1.5	21.3	14.3
9	-429.8	-276.2	-200.2	28.6	16.4	-21.1	47.6	23.6
10	-183.3	165.1	-9.2	103.7	-20.6	2.0	10.3	-11.7

	LOWER ROTOR EDGEWISE BENDING MOMENT .1R		LOWER ROTOR PITCH LINK LOAD	
HARMONIC	COS	SIN	COS	SIN
0	-4593.4		-45.7	
1	2682.8	723.6	-212.6	79.7
2	2985.5	-939.7	59.2	69.6
3	244.9	410.8	19.3	41.5
4	-30.5	81.4	-8.3	11.0
5	93.7	25.5	1.7	44.4
6	25.9	-112.2	3.4	50.7
7	1598.3	251.0	-50.5	-6.1
8	-95.8	-53.0	-27.9	23.8
9	93.3	-4.1	-88.2	22.7
10	-21.8	30.2	4.4	54.2

RUN 24	POINT 6					
VKTS =	140.9	OMEG*R = 590.9	ALFS,C = 5.3	CLR/S,R =0.07855	CMY/S,R = 0.1258	
V/OR =	0.403	RHO100 = 0.2204	CP/S = 0.002754	CDR/S,R =0.01014	CMX/S,R =-0.0126	

PSI	UPPER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	UR EDGEWISE BENDING .1R	UR PITCH LINK LOAD	UPPER ROTOR SHAFT STRESS
0.00	-4890.	-621.	-1429.	-781.	-3733.	-172.	-1511.
11.25	-5780.	-1713.	-2408.	-2167.	-3013.	-51.	-3485.
22.50	-6807.	-2472.	-2802.	-2848.	-1771.	-117.	-4413.
33.75	-6955.	-2745.	-2684.	-3639.	-678.	-277.	-4498.
45.00	-5207.	-2208.	-2628.	-5432.	-858.	-204.	-5087.
56.25	-4014.	-1596.	-2769.	-6001.	-1855.	147.	-6066.
67.50	-5103.	-1842.	-2836.	-4566.	-2604.	234.	-5653.
78.75	-5730.	-2135.	-2601.	-3868.	-3239.	-83.	-3582.
90.00	-3834.	-1344.	-2175.	-4831.	-4177.	-282.	-1921.
101.25	-2359.	-498.	-2109.	-5229.	-5193.	-239.	-1274.
112.50	-4365.	-1335.	-2780.	-4015.	-5994.	-235.	122.
123.75	-7754.	-3362.	-3741.	-2753.	-6353.	-212.	2253.
135.00	-8565.	-4503.	-4280.	-3447.	-6241.	-113.	2777.
146.25	-6741.	-3978.	-4241.	-6235.	-6143.	-181.	1294.
157.50	-5333.	-2976.	-3957.	-8887.	-6255.	-382.	126.
168.75	-6038.	-2867.	-3907.	-9442.	-6098.	-455.	1069.
180.00	-8289.	-3876.	-4379.	-8298.	-5482.	-414.	3714.
191.25	-10648.	-5248.	-5026.	-6572.	-4711.	-359.	6167.
202.50	-11264.	-5835.	-5107.	-4937.	-4140.	-283.	7021.
213.75	-9296.	-4882.	-4308.	-4068.	-4081.	-240.	6885.
225.00	-6246.	-2845.	-2963.	-3594.	-4262.	-288.	6801.
236.25	-3827.	-917.	-1653.	-2241.	-4148.	-430.	6398.
247.50	-2179.	353.	-753.	14.	-4374.	-606.	5693.
258.75	-1342.	1146.	-146.	2414.	-5656.	-611.	5959.
270.00	-1283.	1628.	452.	4629.	-6811.	-437.	7075.
281.25	-792.	2051.	966.	5763.	-6769.	-432.	7366.
292.50	446.	2646.	1200.	5195.	-6619.	-589.	6320.
303.75	1024.	3015.	1187.	3950.	-7158.	-525.	4507.
315.00	755.	2774.	927.	2560.	-7377.	-367.	2344.
326.25	438.	2300.	444.	749.	-6635.	-476.	716.
337.50	-721.	1758.	-24.	-344.	-5476.	-607.	310.
348.75	-3069.	731.	-537.	-244.	-4444.	-439.	8.

RUN 24 POINT 6
VKTS = 140.9 OMEG*R = 590.9 ALFS,C = 5.3 CLR/S,R =0.07855 CMY/S,R = 0.1258
V/OR = 0.403 RHO100 = 0.2204 CP/S = 0.002754 CDR/S,R =0.01014 CMX/S,R =-0.0126

PSI	LOWER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	LR EDGEWISE BENDING .1R	LR PITCH LINK LOAD
300.00	1963.	1090.	582.	-593.	-4003.	-168.
288.75	1220.	1300.	968.	-259.	-7223.	-210.
277.50	2191.	1425.	1363.	-99.	-8348.	-371.
266.25	4572.	2619.	1746.	-199.	-7432.	-158.
255.00	4122.	3144.	1819.	-213.	-7374.	38.
243.75	2135.	2180.	1479.	-201.	-9071.	-3.
232.50	2087.	1364.	852.	-469.	-9934.	99.
221.25	2798.	1351.	337.	-896.	-8008.	201.
210.00	2719.	1441.	269.	-1226.	-5320.	61.
198.75	2355.	1391.	300.	-1402.	-5078.	89.
187.50	999.	864.	-84.	-1332.	-6501.	313.
176.25	-1278.	-326.	-591.	-967.	-5859.	259.
165.00	-2118.	-1098.	-604.	-538.	-2981.	88.
153.75	-1194.	-718.	-119.	-218.	-2009.	173.
142.50	-176.	91.	547.	60.	-4397.	266.
131.25	988.	901.	1277.	301.	-6553.	144.
120.00	2671.	1989.	2006.	429.	-6057.	7.
108.75	3581.	3007.	2607.	529.	-5111.	-39.
97.50	2845.	3219.	2891.	720.	-6204.	-44.
86.25	1269.	2512.	2607.	891.	-8197.	-35.
75.00	-53.	1404.	1764.	855.	-8140.	-40.
63.75	-1230.	344.	769.	636.	-5374.	-56.
52.50	-2888.	-752.	-45.	345.	-2577.	-118.
41.25	-4005.	-1803.	-691.	-88.	-2066.	-194.
30.00	-3637.	-2220.	-1291.	-651.	-2276.	-55.
18.75	-4143.	-2425.	-1912.	-983.	-453.	156.
7.50	-6911.	-3560.	-2511.	-904.	2362.	-61.
356.25	-8500.	-4931.	-2941.	-752.	2686.	-436.
345.00	-7122.	-4973.	-3030.	-734.	153.	-350.
333.75	-5305.	-4004.	-2565.	-678.	-1977.	-186.
322.50	-3185.	-2670.	-1472.	-622.	-1898.	-397.
311.25	243.	-642.	-216.	-685.	-1771.	-435.

RUN 24 POINT 7
VKTS = 140.9 OMEG*R = 603.8 ALFS,C = 5.5 CLR/S,R =0.11311 CMY/S,R = 0.1694
V/OR = 0.394 RHO100 = 0.2188 CP/S = 0.003186 CDR/S,R =0.01295 CMX/S,R =-0.0128

UPPER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R COS	.1R SIN	.2R COS	.2R SIN	.3R COS	.3R SIN	.6R COS	.6R SIN
0	313.3		2175.5		250.7		-896.2	
1	-3000.7	4589.4	-1969.5	2542.4	-1115.9	1378.4	109.2	-1332.8
2	-1891.4	-696.0	-1358.2	-502.3	-1029.7	-190.6	-2290.6	398.1
3	-116.2	248.1	-88.8	109.5	-45.7	90.7	30.8	33.3
4	-64.2	-1146.8	171.9	-640.0	74.3	-288.8	40.4	1022.2
5	-239.6	683.3	-251.8	342.6	-120.3	128.7	213.7	-519.8
6	-186.5	-615.3	1.5	-409.8	-45.8	-222.1	172.2	338.7
7	349.5	-133.7	198.0	-20.9	19.6	-24.6	-195.0	79.6
8	32.4	236.2	-34.4	88.7	1.9	-21.8	-12.6	-162.8
9	-346.1	245.0	-153.1	-1.0	32.8	-7.8	183.6	-227.1
10	-63.4	-44.0	-16.8	-16.0	-0.2	23.7	94.6	-76.8

HARMONIC	UPPER ROTOR EDGEWISE BENDING MOMENT .1R COS	SIN	UPPER ROTOR PITCH LINK LOAD COS	SIN	UPPER ROTOR SHAFT STRESS COS	SIN
0	0.0		-305.4		2183.8	
1	0.0	0.0	43.3	286.6	-4605.6	-2161.5
2	0.0	0.0	-2.6	108.3	-762.1	-781.1
3	0.0	0.0	-10.7	-41.0	422.1	-322.5
4	0.0	0.0	25.6	24.9	-182.7	1201.1
5	0.0	0.0	9.1	-33.2	-26.0	-234.2
6	0.0	0.0	49.0	10.7	11.9	51.6
7	0.0	0.0	-35.2	48.5	-237.1	-229.2
8	0.0	0.0	41.8	14.1	140.8	-188.3
9	0.0	0.0	4.1	39.1	87.2	-27.9
10	0.0	0.0	-0.9	-15.1	-79.2	33.8

RUN 24 POINT 7

VKTS = 140.9 OMEG*R = 603.8 ALFS,C = 5.5 CLR/S,R =0.11311 CMY/S,R = 0.1694

V/OR = 0.394 RHO100 = 0.2188 CP/S = 0.003186 CDR/S,R =0.01295 CMX/S,R =-0.0128

LOWER ROTOR BLADE NORMAL BENDING MOMENT

	.1R		.2R		.3R		.6R	
HARMONIC	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	1587.1		1464.1		1175.3		-190.4	
1	1787.5	-5947.8	1158.4	-3847.4	1073.7	-2165.6	370.5	146.4
2	-2677.2	1311.3	-1839.8	1161.9	-1434.2	680.8	-461.4	131.9
3	-129.0	-261.7	-81.8	-129.8	10.5	-55.7	92.2	41.2
4	-550.2	890.6	-49.5	609.6	-6.9	286.2	56.3	-147.4
5	-244.8	-502.9	-250.1	-189.2	-101.3	-75.0	33.7	57.1
6	-362.0	631.7	8.3	419.2	-28.3	190.3	19.0	-63.8
7	297.6	264.4	204.2	-21.2	63.0	-32.3	-34.3	-11.6
8	-47.4	-172.5	-58.3	-45.1	6.2	-11.0	5.8	14.5
9	-321.1	-281.1	-158.9	13.2	20.8	-2.1	32.8	26.0
10	-198.7	43.4	-35.8	73.0	-7.3	-11.6	14.9	-2.6

	LOWER ROTOR EDGEWISE BENDING MOMENT .1R		LOWER ROTOR PITCH LINK LOAD	
HARMONIC	COS	SIN	COS	SIN
0	-4959.5		-66.4	
1	2965.6	1101.9	-184.9	71.8
2	310.7	-1715.5	74.9	114.4
3	352.6	52.6	5.0	55.2
4	41.2	-59.8	-55.7	27.8
5	16.3	88.6	-2.6	2.6
6	-10.2	-130.6	40.0	60.9
7	587.1	-510.4	-4.2	16.4
8	-31.3	-76.8	-32.1	-6.6
9	95.9	-57.4	-60.4	76.0
10	-16.9	-6.8	-60.0	39.4

RUN 24 POINT 7

VKTS = 140.9 OMEG*R = 603.8 ALFS,C = 5.5 CLR/S,R =0.11311 CMY/S,R = 0.1694

V/OR = 0.394 RHO100 = 0.2188 CP/S = 0.003186 CDR/S,R =0.01295 CMX/S,R =-0.0128

PSI	UPPER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	UR EDGEWISE BENDING .1R	UR PITCH LINK LOAD	UPPER ROTOR SHAFT STRESS
0.00	-5213.	-1326.	-1978.	-2550.	0.	-182.	-3047.
11.25	-4303.	-1157.	-1955.	-2661.	0.	-79.	-3465.
22.50	-3179.	-429.	-1371.	-1895.	0.	-157.	-3151.
33.75	-1479.	712.	-323.	-1301.	0.	-175.	-2835.
45.00	1623.	2388.	559.	-1838.	0.	-7.	-3383.
56.25	3860.	3854.	1042.	-1531.	0.	137.	-4124.
67.50	3962.	4402.	1583.	-69.	0.	107.	-3295.
78.75	5012.	5031.	2317.	31.	0.	42.	-926.
90.00	7826.	6482.	2836.	-1037.	0.	1.	1099.
101.25	8418.	7252.	2936.	-784.	0.	-91.	2510.
112.50	5988.	6232.	2654.	395.	0.	-126.	4424.
123.75	4590.	4902.	2097.	230.	0.	-67.	5955.
135.00	5508.	4845.	1718.	-1596.	0.	-191.	5500.
146.25	6644.	5533.	1829.	-3818.	0.	-487.	4011.
157.50	6363.	5716.	1925.	-5173.	0.	-519.	3417.
168.75	4671.	4896.	1413.	-4884.	0.	-279.	4140.
180.00	1493.	3205.	481.	-3235.	0.	-203.	5672.
191.25	-1650.	1356.	-340.	-1379.	0.	-324.	7118.
202.50	-2666.	402.	-717.	-294.	0.	-369.	7577.
213.75	-1899.	638.	-550.	-99.	0.	-356.	7276.
225.00	-1052.	1334.	-92.	-95.	0.	-407.	6800.
236.25	-609.	1808.	222.	302.	0.	-493.	5918.
247.50	-578.	1930.	267.	1024.	0.	-590.	4882.
258.75	-1489.	1614.	167.	2115.	0.	-638.	4611.
270.00	-2981.	891.	-31.	3348.	0.	-568.	4843.
281.25	-3692.	281.	-332.	3513.	0.	-529.	4700.
292.50	-3607.	74.	-726.	2349.	0.	-637.	4126.
303.75	-3965.	-201.	-1161.	1093.	0.	-683.	3006.
315.00	-4538.	-689.	-1471.	-267.	0.	-553.	1112.
326.25	-4271.	-814.	-1572.	-2274.	0.	-465.	-703.
337.50	-4037.	-648.	-1624.	-3406.	0.	-486.	-1636.
348.75	-4824.	-899.	-1780.	-2893.	0.	-400.	-2252.

RUN 24 POINT 7

VKTS = 140.9 OMEG*R = 603.8 ALFS,C = 5.5 CLR/S,R =0.11311 CMY/S,R = 0.1694

V/OR = 0.394 RHO100 = 0.2188 CP/S = 0.003186 CDR/S,R =0.01295 CMX/S,R =-0.0128

PSI	LOWER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	LR EDGEWISE BENDING .1R	LR PITCH LINK LOAD
300.00	8641.	6072.	3851.	-243.	-2702.	-140.
288.75	7827.	6002.	4193.	80.	-4552.	-302.
277.50	9372.	6319.	4594.	164.	-6324.	-440.
266.25	11328.	7460.	4845.	77.	-6965.	-176.
255.00	9790.	7460.	4643.	138.	-7049.	35.
243.75	6845.	5828.	3898.	194.	-7864.	17.
232.50	5793.	4324.	2870.	-47.	-9420.	41.
221.25	5620.	3687.	2054.	-496.	-10103.	125.
210.00	4665.	3190.	1535.	-932.	-9254.	186.
198.75	2579.	2184.	786.	-1207.	-8485.	206.
187.50	-967.	279.	-465.	-1197.	-8748.	164.
176.25	-4782.	-2200.	-1755.	-963.	-8447.	151.
165.00	-6617.	-3957.	-2522.	-751.	-6528.	144.
153.75	-6354.	-4270.	-2603.	-660.	-4667.	36.
142.50	-5341.	-3674.	-2133.	-579.	-4413.	52.
131.25	-4165.	-2796.	-1434.	-430.	-4839.	216.
120.00	-3072.	-1895.	-799.	-229.	-4502.	90.
108.75	-2483.	-1182.	-259.	21.	-3603.	-206.
97.50	-2475.	-777.	234.	320.	-3289.	-197.
86.25	-2416.	-596.	583.	561.	-4034.	-130.
75.00	-1451.	-303.	739.	588.	-5062.	-186.
63.75	-180.	270.	822.	452.	-5107.	-8.
52.50	17.	667.	950.	328.	-4001.	141.
41.25	7.	711.	1098.	184.	-3093.	-92.
30.00	993.	974.	1145.	-43.	-3241.	-106.
18.75	1116.	1268.	1037.	-157.	-3258.	184.
7.50	-398.	811.	862.	-86.	-1882.	-18.
356.25	-649.	259.	749.	-76.	-299.	-452.
345.00	1134.	718.	862.	-175.	-481.	-379.
333.75	2985.	1836.	1442.	-227.	-1883.	-262.
322.50	5311.	3219.	2440.	-302.	-2457.	-449.
311.25	8115.	4965.	3349.	-399.	-2152.	-368.

RUN 24 POINT 8

VKTS = 141.2 OMEG*R = 601.7 ALFS,C = 5.5 CLR/S,R =0.12530 CMY/S,R = 0.1812

V/OR = 0.396 RHO100 = 0.2184 CP/S = 0.004110 CDR/S,R =0.01325 CMX/S,R =-0.0135

UPPER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R COS	.1R SIN	.2R COS	.2R SIN	.3R COS	.3R SIN	.6R COS	.6R SIN
0	1451.5		2970.9		808.2		-486.7	
1	-126.4	6902.0	-69.5	4268.2	213.5	2521.8	1277.2	-395.1
2	-1996.5	-1327.5	-1406.2	-967.0	-1043.1	-546.4	-2159.0	-416.6
3	-129.9	175.5	-71.7	52.3	-27.9	74.9	74.6	154.4
4	-72.2	-1191.7	193.7	-648.1	68.3	-282.4	21.3	1047.5
5	-341.6	885.9	-332.0	425.8	-137.2	186.0	296.3	-687.4
6	-249.5	-729.5	-4.1	-489.4	-58.5	-261.7	210.5	397.9
7	376.7	-84.4	201.8	-17.6	22.3	-42.0	-221.3	52.3
8	98.4	186.8	-11.5	71.1	-24.6	-29.2	-82.9	-128.2
9	-237.1	332.6	-125.5	58.9	37.0	-19.9	84.0	-258.8
10	-58.8	-11.6	-24.1	-7.1	-11.5	7.9	58.0	-100.9

HARMONIC	UPPER ROTOR EDGEWISE BENDING MOMENT .1R COS	SIN	UPPER ROTOR PITCH LINK LOAD COS	SIN	UPPER ROTOR SHAFT STRESS COS	SIN
0	0.0		-335.4		2405.4	
1	0.0	0.0	42.7	290.7	-4013.6	-878.6
2	0.0	0.0	13.3	156.4	-668.8	-665.4
3	0.0	0.0	-13.3	-12.7	407.0	-358.4
4	0.0	0.0	3.9	42.8	24.2	1137.7
5	0.0	0.0	26.5	-47.5	15.1	-482.7
6	0.0	0.0	65.7	-0.9	39.2	79.3
7	0.0	0.0	-15.9	-6.8	-268.0	-282.9
8	0.0	0.0	42.7	21.4	59.4	-194.7
9	0.0	0.0	20.3	20.2	111.4	-48.9
10	0.0	0.0	-7.1	-28.5	-93.1	47.6

RUN 24 POINT 8
VKTS = 141.2 OMEG*R = 601.7 ALFS,C = 5.5 CLR/S,R =0.12530 CMY/S,R = 0.1812
V/CR = 0.396 RHO100 = 0.2184 CP/S = 0.004110 CDR/S,R =0.01325 CMX/S,R =-0.0135

LOWER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R COS	.1R SIN	.2R COS	.2R SIN	.3R COS	.3R SIN	.6R COS	.6R SIN
0	2973.2		2419.5		1823.2		-122.8	
1	-524.5	-7272.8	-565.5	-4588.9	-122.7	-2709.6	160.4	77.9
2	-2689.3	973.7	-1901.3	928.2	-1495.4	488.5	-512.3	41.4
3	-88.0	-244.9	-60.7	-120.5	13.3	-42.1	77.2	44.0
4	-768.9	1018.0	-165.7	741.8	-89.3	344.9	95.2	-176.2
5	-354.4	-426.2	-301.1	-131.1	-134.9	-61.8	47.9	44.7
6	-557.7	656.3	-88.1	473.8	-77.8	212.2	36.4	-70.7
7	262.9	271.8	205.9	-8.0	81.4	-35.6	-19.6	-15.6
8	-12.1	-259.1	-71.9	-81.5	7.7	-9.1	1.4	32.5
9	-72.5	-361.6	-113.1	-76.1	23.0	6.2	19.3	38.2
10	-88.3	-40.0	-34.3	22.3	-12.6	3.9	-15.4	34.9

HARMONIC	LOWER ROTOR EDGEWISE BENDING MOMENT .1R COS	SIN	LOWER ROTOR PITCH LINK LOAD COS	SIN
0	-4663.7		-8.3	
1	3656.8	2444.6	-198.7	75.6
2	927.0	-1032.6	86.8	114.8
3	282.6	141.4	36.6	78.7
4	-50.2	-11.1	-30.6	35.6
5	-9.1	68.5	-2.3	49.9
6	47.8	-161.0	5.1	72.2
7	739.4	-31.1	14.2	-26.1
8	-140.5	-106.0	-23.3	-9.5
9	168.5	30.5	-61.9	19.0
10	-18.6	-14.2	-35.8	27.6

RUN 24 POINT 8

VKTS =	141.2	OMEG*R =	601.7	ALFS,C =	5.5	CLR/S,R =0.12530	CMY/S,R = 0.1812
V/OR =	0.396	RHU100 =	0.2184	CP/S =	0.004110	CDR/S,R =0.01325	CMX/S,R =-0.0135

	UPPER ROTOR BLADE NORMAL BENDING MOMENT				UR EDGEWISE	UR PITCH	UPPER ROTOR
PSI	.1R	.2R	.3R	.6R	BENDING .1R	LINK LOAD	SHAFT STRESS
0.00	-1285.	1322.	-153.	-928.	0.	-157.	-1982.
11.25	-244.	1608.	-63.	-1026.	0.	-147.	-2433.
22.50	819.	2346.	667.	-317.	0.	-172.	-2015.
33.75	2830.	3616.	1714.	-202.	0.	-75.	-1532.
45.00	6028.	5379.	2468.	-867.	0.	105.	-1872.
56.25	7720.	6620.	2880.	-201.	0.	176.	-2349.
67.50	7580.	6974.	3394.	1196.	0.	59.	-1349.
78.75	9010.	7758.	4108.	863.	0.	-52.	851.
90.00	11812.	9306.	4620.	-206.	0.	-78.	2443.
101.25	11761.	9783.	4622.	351.	0.	-160.	3594.
112.50	8684.	8320.	4067.	1682.	0.	-218.	5499.
123.75	6545.	6490.	3141.	1653.	0.	-142.	6859.
135.00	6562.	5768.	2403.	-123.	0.	-200.	6017.
146.25	6946.	5881.	2219.	-2796.	0.	-469.	4237.
157.50	6424.	5762.	2017.	-4973.	0.	-558.	3432.
168.75	4057.	4537.	1068.	-5321.	0.	-392.	3949.
180.00	-369.	2116.	-369.	-3949.	0.	-277.	5514.
191.25	-4488.	-408.	-1532.	-2335.	0.	-270.	7089.
202.50	-5776.	-1676.	-2097.	-1712.	0.	-303.	7217.
213.75	-4945.	-1527.	-2062.	-1994.	0.	-397.	6225.
225.00	-4003.	-817.	-1591.	-2146.	0.	-441.	5359.
236.25	-3366.	-187.	-1123.	-1603.	0.	-434.	4557.
247.50	-2996.	187.	-941.	-549.	0.	-577.	3739.
258.75	-3447.	157.	-860.	1071.	0.	-732.	3634.
270.00	-4247.	-131.	-690.	2890.	0.	-644.	3980.
281.25	-4051.	-101.	-516.	3573.	0.	-547.	3880.
292.50	-3081.	347.	-436.	2922.	0.	-648.	3234.
303.75	-2537.	639.	-435.	2012.	0.	-704.	1999.
315.00	-2099.	733.	-418.	772.	0.	-651.	258.
326.25	-1172.	1139.	-254.	-882.	0.	-662.	-888.
337.50	-830.	1600.	-9.	-1479.	0.	-608.	-989.
348.75	-1395.	1528.	27.	-950.	0.	-362.	-1184.

RUN 24 POINT 8
VKTS = 141.2 OMEG*R = 601.7 ALFS,C = 5.5 CLR/S,R =0.12530 CMY/S,R = 0.1812
V/OR = 0.396 RHO100 = 0.2184 CP/S = 0.004110 CDR/S,R =0.01325 CMX/S,R =-0.0135

	LOWER ROTOR BLADE NORMAL BENDING MOMENT				LR EDGEWISE	LR PITCH
	.1R	.2R	.3R	.6R	BENDING .1R	LINK LOAD
PSI						
300.00	9969.	7057.	4627.	-75.	-4299.	-106.
288.75	9795.	7147.	5099.	251.	-6352.	-310.
277.50	12023.	7916.	5663.	337.	-7850.	-397.
266.25	13944.	9273.	6132.	333.	-8298.	-88.
255.00	12670.	9369.	6077.	356.	-8413.	130.
243.75	10300.	8015.	5406.	344.	-9274.	109.
232.50	9396.	6745.	4492.	123.	-10437.	125.
221.25	9387.	6256.	3817.	-369.	-10219.	174.
210.00	8760.	5964.	3390.	-836.	-8879.	201.
198.75	6468.	4975.	2640.	-991.	-8581.	262.
187.50	2420.	2805.	1280.	-919.	-9158.	262.
176.25	-1491.	143.	-126.	-724.	-8132.	179.
165.00	-3221.	-1586.	-898.	-456.	-5643.	166.
153.75	-3122.	-1920.	-976.	-333.	-4443.	226.
142.50	-2550.	-1537.	-632.	-348.	-4933.	257.
131.25	-1820.	-970.	-145.	-240.	-4910.	200.
120.00	-1124.	-365.	227.	-40.	-3722.	30.
108.75	-1262.	-37.	447.	141.	-2806.	-94.
97.50	-2177.	-214.	611.	421.	-2959.	-48.
86.25	-2561.	-561.	610.	639.	-3565.	-42.
75.00	-2044.	-636.	376.	536.	-3628.	-124.
63.75	-1513.	-546.	201.	361.	-2647.	-71.
52.50	-1890.	-514.	290.	245.	-1268.	1.
41.25	-918.	-226.	439.	-94.	-744.	-31.
30.00	273.	348.	438.	-457.	-1044.	107.
18.75	-447.	373.	301.	-416.	-737.	276.
7.50	-1923.	-346.	104.	-237.	467.	36.
356.25	-1548.	-670.	20.	-249.	884.	-298.
345.00	345.	56.	381.	-242.	-385.	-310.
333.75	2915.	1520.	1377.	-221.	-1921.	-341.
322.50	6643.	3648.	2747.	-373.	-2469.	-461.
311.25	9745.	5940.	3929.	-399.	-2874.	-284.

RUN 24 POINT 9

VKTS =	142.4	OMEG*R =	600.4	ALFS,C =	7.9	CLR/S,R =0.09029		CMY/S,R = 0.1804
V/CR =	0.400	RHO100 =	0.2175	CP/S =	0.000919	CDR/S,R =0.01622		CMX/S,R =-0.0004

UPPER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R COS	.1R SIN	.2R COS	.2R SIN	.3R COS	.3R SIN	.6R COS	.6R SIN
0	-1031.5		1185.3		-468.1		-1621.5	
1	-4734.6	3273.6	-3121.2	1591.8	-1942.8	766.1	-729.2	-1882.5
2	-928.7	-206.8	-634.6	-79.9	-492.7	117.1	-1135.2	954.7
3	260.8	300.8	116.5	192.8	38.2	128.8	-412.4	284.3
4	-42.9	-759.2	172.3	-422.5	117.5	-199.9	137.5	634.3
5	-133.6	703.8	-157.4	393.7	-56.1	177.6	129.1	-558.0
6	-211.7	-485.5	-35.4	-358.6	-68.0	-181.7	198.3	268.1
7	294.5	-100.8	191.5	-15.5	56.2	-31.0	-167.5	67.9
8	100.0	323.9	-11.7	105.3	0.1	-47.7	-77.0	-244.2
9	-388.7	169.0	-171.2	-33.8	23.4	8.5	233.6	-213.0
10	-70.4	-9.4	-19.1	-7.4	15.8	11.4	49.9	-81.9

HARMONIC	UPPER ROTOR EDGEWISE BENDING MOMENT .1R COS	SIN	UPPER ROTOR PITCH LINK LOAD COS	SIN	UPPER ROTOR SHAFT STRESS COS	SIN
0	0.0		-421.8		2022.0	
1	0.0	0.0	-40.4	351.6	-3049.6	2744.6
2	0.0	0.0	-10.0	52.3	-515.7	-929.3
3	0.0	0.0	-105.3	21.3	389.3	-27.8
4	0.0	0.0	-16.1	-26.3	-270.9	1031.3
5	0.0	0.0	-57.8	-42.2	36.6	-396.4
6	0.0	0.0	33.6	50.8	-0.3	59.9
7	0.0	0.0	68.0	99.4	-235.5	-252.8
8	0.0	0.0	39.8	33.0	127.7	-337.5
9	0.0	0.0	8.4	-0.7	32.0	23.8
10	0.0	0.0	1.2	-32.1	-59.7	-6.6

RUN 24	POINT 9				
VKTS =	142.4	OMEG*R = 600.4	ALFS,C = 7.9	CLR/S,R =0.09029	CMY/S,R = 0.1804
V/OR =	0.400	RHO100 = 0.2175	CP/S = 0.000919	CDR/S,R =0.01622	CMX/S,R =-0.0004

LOWER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R COS	.1R SIN	.2R COS	.2R SIN	.3R COS	.3R SIN	.6R COS	.6R SIN
0	-1887.5		-1008.7		-509.8		-405.0	
1	4729.7	-1098.0	3548.8	-662.9	2689.3	87.1	635.8	514.4
2	-3359.0	1430.3	-2256.8	1319.9	-1701.8	807.1	-492.4	230.3
3	-234.8	-199.9	-132.8	-40.5	-14.2	8.1	116.7	69.6
4	-229.8	199.9	-23.6	174.5	25.8	98.9	20.8	-40.4
5	-89.8	-722.2	-192.7	-366.2	-37.2	-182.1	23.4	83.5
6	-481.7	421.2	-127.5	348.1	-84.2	142.8	38.7	-49.6
7	211.7	273.0	201.0	4.6	76.3	-30.8	-20.8	-19.5
8	-102.6	-64.1	-33.9	17.9	19.3	16.1	11.8	4.4
9	-334.9	15.1	-92.5	102.9	-5.0	-1.0	27.5	-11.0
10	-142.3	9.1	-23.9	67.9	-2.3	5.4	-4.3	8.7

HARMONIC	LOWER ROTOR EDGEWISE BENDING MOMENT .1R COS	SIN	LOWER ROTOR PITCH LINK LOAD COS	SIN
0	-5068.7		-133.1	
1	1522.7	-718.7	-177.3	98.5
2	615.6	-2717.5	35.3	92.6
3	457.1	138.1	-7.0	26.9
4	54.7	-76.5	-46.3	-26.1
5	84.3	34.0	-14.4	-28.5
6	26.8	-67.4	43.0	18.7
7	1270.6	-679.9	10.8	26.9
8	-89.4	-152.4	11.2	-6.4
9	-4.3	-17.1	-1.6	55.6
10	-0.8	-11.8	-36.2	15.9

RUN 24 POINT 9

VKTS = 142.4	OMEG*R = 600.4	ALFS,C = 7.9	CLR/S,R =0.09029	CMY/S,R = 0.1804
V/OR = 0.400	RHO100 = 0.2175	CP/S = 0.000919	CDR/S,R =0.01622	CMX/S,R =-0.0004

PSI	UPPER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	UR EDGEWISE BENDING .1R	UR PITCH LINK LOAD	UPPER ROTOR SHAFT STRESS
0.00	-6887.	-2485.	-2777.	-3394.	0.	-500.	-1524.
11.25	-5633.	-2132.	-2726.	-3655.	0.	-384.	-1271.
22.50	-4889.	-1580.	-2305.	-2774.	0.	-397.	51.
33.75	-4130.	-976.	-1563.	-1972.	0.	-318.	1261.
45.00	-1903.	80.	-1045.	-2434.	0.	-33.	1220.
56.25	-133.	1132.	-798.	-2381.	0.	228.	767.
67.50	-148.	1533.	-318.	-1457.	0.	117.	1603.
78.75	1015.	2194.	447.	-1976.	0.	-185.	3607.
90.00	4183.	3809.	1049.	-3679.	0.	-235.	5107.
101.25	5362.	4864.	1252.	-3817.	0.	-119.	6040.
112.50	3580.	4208.	1112.	-2425.	0.	-126.	7715.
123.75	2837.	3346.	869.	-1999.	0.	-196.	9241.
135.00	4567.	3864.	944.	-3106.	0.	-253.	8415.
146.25	6067.	5030.	1449.	-4119.	0.	-318.	5883.
157.50	5867.	5470.	1868.	-4003.	0.	-283.	4198.
168.75	4601.	4954.	1674.	-3009.	0.	-192.	3956.
180.00	2516.	3799.	986.	-1502.	0.	-246.	4130.
191.25	187.	2437.	378.	106.	0.	-373.	4196.
202.50	-772.	1699.	238.	842.	0.	-452.	3935.
213.75	-47.	1972.	398.	398.	0.	-591.	3037.
225.00	665.	2466.	495.	-28.	0.	-760.	1629.
236.25	299.	2391.	452.	323.	0.	-796.	273.
247.50	-648.	1917.	296.	901.	0.	-733.	-452.
258.75	-1962.	1255.	-90.	1577.	0.	-642.	-435.
270.00	-3710.	261.	-660.	2332.	0.	-611.	-198.
281.25	-5014.	-715.	-1201.	2087.	0.	-800.	-76.
292.50	-5482.	-1229.	-1718.	716.	0.	-978.	1.
303.75	-6108.	-1704.	-2283.	-531.	0.	-743.	-418.
315.00	-6883.	-2404.	-2736.	-1775.	0.	-417.	-1582.
326.25	-6794.	-2683.	-2933.	-3468.	0.	-549.	-2336.
337.50	-6561.	-2441.	-2919.	-4156.	0.	-842.	-1896.
348.75	-7050.	-2401.	-2816.	-3507.	0.	-771.	-1374.

RUN 24 POINT 9
VKTS = 142.4 OMEG*R = 600.4 ALFS,C = 7.9 CLR/S,R =0.09029 CMY/S,R = 0.1804
V/OR = 0.400 RHO100 = 0.2175 CP/S = 0.000919 CDR/S,R =0.01622 CMX/S,R =-0.0004

PSI	LOWER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	LR EDGEWISE BENDING .1R	LR PITCH LINK LOAD
300.00	1630.	1341.	790.	-546.	-696.	-371.
288.75	1501.	1363.	987.	-428.	-3463.	-419.
277.50	2664.	1705.	1290.	-406.	-5618.	-388.
266.25	3793.	2437.	1365.	-478.	-5268.	-222.
255.00	2042.	2017.	798.	-493.	-4739.	-93.
243.75	-1438.	-14.	-324.	-429.	-6540.	-48.
232.50	-3407.	-1974.	-1475.	-559.	-9074.	-27.
221.25	-3655.	-2794.	-2276.	-1017.	-9200.	0.
210.00	-4260.	-3179.	-2806.	-1493.	-7346.	48.
198.75	-6289.	-4079.	-3435.	-1697.	-6623.	56.
187.50	-9011.	-5670.	-4350.	-1688.	-7580.	31.
176.25	-10989.	-7278.	-5196.	-1555.	-7478.	93.
165.00	-11405.	-7920.	-5367.	-1314.	-5047.	119.
153.75	-10318.	-7328.	-4716.	-1084.	-2720.	-26.
142.50	-8277.	-6023.	-3667.	-886.	-2948.	-49.
131.25	-6216.	-4560.	-2612.	-578.	-4652.	120.
120.00	-4539.	-3172.	-1564.	-184.	-5150.	59.
108.75	-2734.	-1775.	-433.	150.	-4319.	-185.
97.50	-961.	-346.	659.	444.	-4556.	-199.
86.25	254.	775.	1492.	689.	-6771.	-129.
75.00	1674.	1594.	2032.	739.	-8789.	-153.
63.75	3245.	2480.	2378.	650.	-8515.	-13.
52.50	3121.	2947.	2486.	610.	-6875.	140.
41.25	1705.	2397.	2237.	561.	-6228.	-58.
30.00	1198.	1633.	1738.	383.	-6750.	-267.
18.75	734.	1259.	1216.	187.	-6103.	-184.
7.50	-1066.	537.	743.	60.	-3190.	-188.
356.25	-1930.	-394.	332.	-123.	-472.	-376.
345.00	-585.	-372.	113.	-410.	-618.	-409.
333.75	653.	330.	180.	-655.	-2256.	-348.
322.50	982.	742.	425.	-737.	-2121.	-384.
311.25	1484.	1041.	649.	-676.	-490.	-391.

RUN 24	POINT 10									
VKTS =	142.5	OMEG*R =	607.1	ALFS,C =	7.9	CLR/S,R =	0.09034	CMY/S,R =	0.1801
V/OR =	0.396	RHO100 =	0.2175	CP/S =	0.000884	CDR/S,R =	0.01615	CMX/S,R =	0.0003

UPPER ROTOR BLADE NORMAL BENDING MOMENT

	.1R		.2R		.3R		.6R	
HARMONIC	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-1020.8		1227.2		-466.5		-1593.1	
1	-4763.1	2884.1	-3080.7	1330.7	-1882.6	589.3	-438.2	-1939.2
2	-883.6	-349.2	-614.3	-175.7	-506.0	35.2	-1317.2	717.0
3	164.9	367.6	26.3	246.1	-6.4	153.7	-433.2	103.3
4	172.9	-723.4	286.4	-349.6	172.4	-154.5	-14.1	585.6
5	-413.4	493.0	-291.7	215.4	-125.3	104.0	354.4	-394.9
6	26.4	-487.8	105.3	-341.5	9.0	-187.1	104.8	290.5
7	324.8	34.8	166.8	70.3	57.8	5.0	-177.6	-12.4
8	-116.1	320.7	-80.2	77.5	21.6	-46.1	81.0	-225.8
9	-417.1	-86.5	-130.8	-104.4	-3.9	26.3	248.4	-55.7
10	-67.7	-75.0	-15.3	-10.2	-4.6	23.3	84.4	-53.0

	UPPER ROTOR EDGEWISE BENDING MOMENT .1R		UPPER ROTOR PITCH LINK LOAD		UPPER ROTOR SHAFT STRESS	
HARMONIC	COS	SIN	COS	SIN	COS	SIN
0	0.0		-416.4		2030.7	
1	0.0	0.0	-65.1	356.1	-2848.2	2653.5
2	0.0	0.0	-10.4	54.2	-390.0	-959.4
3	0.0	0.0	-103.5	-17.0	329.2	56.9
4	0.0	0.0	-0.4	-18.0	-631.3	863.4
5	0.0	0.0	-33.3	-57.5	118.1	-306.1
6	0.0	0.0	9.9	67.2	-71.6	47.8
7	0.0	0.0	28.4	105.3	-80.4	-307.8
8	0.0	0.0	23.5	40.6	384.0	-197.3
9	0.0	0.0	-5.2	-2.3	36.9	50.8
10	0.0	0.0	19.0	-30.6	-28.0	-19.3

RUN 24 POINT 10
VKTS = 142.5 OMEG*R = 607.1 ALFS,C = 7.9 CLR/S,R =0.09034 CMY/S,R = 0.1801
V/OR = 0.396 RHO100 = 0.2175 CP/S = 0.000884 CDR/S,R =0.01615 CMX/S,R = 0.0003

LOWER ROTOR BLADE NORMAL BENDING MOMENT

	.1R		.2R		.3R		.6R	
HARMONIC	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-1909.2		-1023.8		-517.1		-408.1	
1	4817.4	-1310.1	3617.3	-833.8	2765.5	-43.5	673.7	477.6
2	-3079.3	1872.8	-2031.0	1607.7	-1558.1	1028.9	-456.3	301.9
3	-281.3	-157.9	-127.2	-17.0	-1.1	7.8	133.1	35.0
4	-140.6	183.7	20.6	150.7	52.8	83.5	10.7	-27.1
5	-274.8	-645.1	-294.5	-305.7	-87.0	-169.4	38.0	76.6
6	-243.6	510.2	36.7	337.3	2.1	155.5	22.8	-53.3
7	304.8	128.0	153.2	-63.4	37.9	-32.0	-29.2	-0.7
8	-142.8	-15.2	-47.8	33.1	13.6	-8.7	13.2	1.7
9	-258.2	290.7	23.9	154.5	4.6	-10.1	21.7	-33.7
10	-59.8	126.9	28.7	68.3	-14.4	14.2	4.9	-13.7

	LOWER ROTOR EDGEWISE BENDING MOMENT .1R		LOWER ROTOR PITCH LINK LOAD	
HARMONIC	COS	SIN	COS	SIN
0	-5153.4		-133.9	
1	1564.5	-933.1	-172.7	115.5
2	220.7	-2800.6	45.6	85.3
3	396.5	-53.3	-0.8	24.6
4	74.7	-49.1	-53.6	-3.1
5	69.5	6.7	-13.1	-22.3
6	39.1	-117.1	43.2	-1.0
7	298.1	-862.5	42.5	9.1
8	-49.9	-79.3	-5.4	3.2
9	-17.0	-71.6	25.4	30.8
10	-26.7	10.0	-5.3	20.9

RUN 24 POINT 10

VKTS = 142.5 OMEG*R = 607.1 ALFS,C = 7.9 CLR/S,R =0.09034 CMY/S,R = 0.1801

V/OR = 0.396 RHO100 = 0.2175 CP/S = 0.000884 CDR/S,R =0.01615 CMX/S,R = 0.0003

	UPPER ROTOR BLADE NORMAL BENDING MOMENT				UR EDGEWISE	UR PITCH	UPPER ROTOR
	.1R	.2R	.3R	.6R	BENDING .1R	LINK LOAD	SHAFT STRESS
PSI							
0.00	-6993.	-2401.	-2735.	-3100.	0.	-554.	-1151.
11.25	-6017.	-2215.	-2692.	-3523.	0.	-396.	-1155.
22.50	-4911.	-1654.	-2416.	-3170.	0.	-378.	-188.
33.75	-4405.	-1069.	-1766.	-2282.	0.	-365.	1480.
45.00	-2639.	-110.	-1105.	-2378.	0.	-165.	2045.
56.25	-307.	1046.	-801.	-2475.	0.	162.	1276.
67.50	1.	1524.	-521.	-1552.	0.	201.	1305.
78.75	134.	1805.	109.	-1415.	0.	-81.	3117.
90.00	2849.	3083.	790.	-2879.	0.	-204.	4922.
101.25	5244.	4551.	1130.	-3761.	0.	-103.	5676.
112.50	4275.	4515.	1119.	-2946.	0.	-112.	6830.
123.75	2786.	3545.	908.	-2131.	0.	-190.	8646.
135.00	3749.	3509.	804.	-2717.	0.	-212.	8820.
146.25	5473.	4527.	1121.	-3923.	0.	-290.	6625.
157.50	5801.	5278.	1628.	-4298.	0.	-340.	4367.
168.75	4911.	5116.	1713.	-3534.	0.	-237.	3655.
180.00	3215.	4219.	1186.	-2208.	0.	-196.	3738.
191.25	970.	2908.	492.	-738.	0.	-299.	3714.
202.50	-614.	1857.	161.	363.	0.	-378.	3536.
213.75	-610.	1721.	241.	493.	0.	-493.	3078.
225.00	146.	2142.	361.	129.	0.	-708.	1994.
236.25	321.	2291.	354.	218.	0.	-824.	486.
247.50	-250.	2069.	328.	663.	0.	-775.	-589.
258.75	-1296.	1652.	162.	1238.	0.	-673.	-703.
270.00	-2927.	832.	-332.	2083.	0.	-620.	-376.
281.25	-4555.	-203.	-930.	2362.	0.	-757.	-246.
292.50	-5263.	-886.	-1435.	1400.	0.	-963.	-138.
303.75	-5672.	-1397.	-1989.	147.	0.	-830.	-63.
315.00	-6496.	-2099.	-2530.	-1026.	0.	-486.	-675.
326.25	-6730.	-2466.	-2774.	-2712.	0.	-499.	-1709.
337.50	-6277.	-2243.	-2770.	-3852.	0.	-774.	-1949.
348.75	-6580.	-2175.	-2741.	-3454.	0.	-787.	-1385.

RUN 24 POINT 10

VKTS =	142.5	OMEG*R =	607.1	ALFS,C =	7.9	CLR/S,R =0.09034	CMY/S,R = 0.1801
V/OR =	0.396	RHO100 =	0.2175	CP/S =	0.000884	CDR/S,R =0.01615	CMX/S,R = 0.0003

	LOWER ROTOR BLADE NORMAL BENDING MOMENT				LR EDGEWISE	LR PITCH
PSI	.1R	.2R	.3R	.6R	BENDING .1R	LINK LOAD
300.00	1647.	1150.	713.	-630.	-616.	-366.
288.75	1584.	1375.	837.	-493.	-2182.	-386.
277.50	1891.	1480.	1139.	-394.	-4427.	-417.
266.25	3267.	2044.	1337.	-485.	-5458.	-316.
255.00	2861.	2198.	945.	-538.	-5564.	-139.
243.75	-419.	693.	-20.	-428.	-6237.	-54.
232.50	-3255.	-1527.	-1154.	-471.	-7844.	-56.
221.25	-3796.	-2776.	-2111.	-857.	-9018.	-26.
210.00	-4065.	-3159.	-2745.	-1342.	-8539.	62.
198.75	-5780.	-3832.	-3285.	-1641.	-7323.	97.
187.50	-8349.	-5262.	-4104.	-1703.	-7030.	33.
176.25	-10486.	-6900.	-5018.	-1605.	-7194.	19.
165.00	-11410.	-7854.	-5419.	-1427.	-6154.	90.
153.75	-10886.	-7715.	-5063.	-1218.	-4234.	66.
142.50	-9148.	-6660.	-4153.	-994.	-3365.	-17.
131.25	-7003.	-5099.	-2981.	-703.	-4059.	33.
120.00	-5210.	-3557.	-1834.	-309.	-4911.	81.
108.75	-3497.	-2260.	-806.	88.	-4918.	-50.
97.50	-1550.	-916.	235.	378.	-4858.	-176.
86.25	1.	424.	1233.	601.	-5963.	-181.
75.00	1281.	1424.	1958.	743.	-7849.	-161.
63.75	2945.	2295.	2385.	702.	-8763.	-51.
52.50	3654.	3014.	2556.	590.	-7978.	109.
41.25	2394.	2801.	2400.	572.	-6792.	24.
30.00	1247.	1932.	1985.	502.	-6493.	-216.
18.75	1085.	1457.	1498.	278.	-6288.	-239.
7.50	-87.	995.	1008.	102.	-4512.	-167.
356.25	-1616.	23.	561.	-31.	-1674.	-286.
345.00	-947.	-361.	266.	-329.	-352.	-422.
333.75	625.	259.	188.	-636.	-1253.	-404.
322.50	894.	724.	330.	-708.	-1962.	-379.
311.25	1037.	824.	571.	-671.	-1099.	-388.

RUN 24 POINT 11
VKTS = 160.6 OMEG*R = 603.8 ALFS,C = 2.8 CLR/S,R =0.08466 CMY/S,R = 0.1025
V/OR = 0.449 RHO100 = 0.2137 CP/S = 0.003551 COR/S,R =0.00762 CMX/S,R =-0.0174

UPPER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R COS	.1R SIN	.2R COS	.2R SIN	.3R COS	.3R SIN	.6R COS	.6R SIN
0	-49392.9		-1589.0		-2333.8		-2909.6	
1	-17.2	-247.0	856.4	2141.7	829.4	1135.4	1873.3	-1331.9
2	8.8	-725.8	-556.3	-1227.1	-415.2	-735.7	-593.5	-961.6
3	-321.2	-403.4	-94.2	-43.4	-42.1	20.9	496.3	483.4
4	37.2	19.7	-122.8	-569.6	1.9	-232.7	720.0	880.3
5	-413.1	-78.4	-379.4	371.9	-136.9	206.5	325.9	-612.2
6	-189.9	-10.9	21.9	-446.9	-33.7	-239.1	153.9	430.6
7	-47.4	103.8	141.8	28.6	25.9	-40.6	-216.0	2.8
8	5.2	-46.4	-4.9	58.7	-18.5	-4.1	-94.9	-105.3
9	-40.0	71.5	33.6	97.0	24.3	-12.1	-143.4	-126.9
10	-58.0	39.7	21.7	-1.7	17.2	17.7	-4.7	-3.5

HARMONIC	UPPER ROTOR EDGEWISE BENDING MOMENT .1R COS	SIN	UPPER ROTOR PITCH LINK LOAD COS	SIN	UPPER ROTOR SHAFT STRESS COS	SIN
0	0.0		-564.0		2424.1	
1	0.0	0.0	49.1	215.3	-3890.5	-2462.8
2	0.0	0.0	-100.4	118.8	-535.1	-717.9
3	0.0	0.0	-17.1	-10.2	544.1	-359.7
4	0.0	0.0	-84.5	-7.4	-54.9	805.9
5	0.0	0.0	84.3	-110.6	152.8	-310.4
6	0.0	0.0	-3.8	29.3	26.1	4.8
7	0.0	0.0	60.1	22.9	-303.5	-217.9
8	0.0	0.0	4.4	37.6	18.4	-113.8
9	0.0	0.0	10.6	33.9	83.7	-12.6
10	0.0	0.0	-17.2	-6.8	10.9	-29.2

RUN 24 POINT 11

VKTS =	160.6	OMEG*R =	603.8	ALFS,C =	2.8	CLR/S,R =	0.08466	CMY/S,R =	0.1025
V/OR =	0.449	RHO100 =	0.2137	CP/S =	0.003551	COR/S,R =	0.00762	CMX/S,R =	-0.0174

LOWER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R COS	.1R SIN	.2R COS	.2R SIN	.3R COS	.3R SIN	.6R COS	.6R SIN
0	55.6		465.7		503.8		-271.6	
1	-2123.3	-5100.5	-1534.2	-2952.3	-762.6	-1579.6	132.0	257.6
2	-3604.0	531.9	-2681.4	677.0	-2119.1	207.2	-693.0	-93.3
3	-327.0	-487.2	-253.2	-231.8	-101.9	-108.0	82.8	108.0
4	-316.0	793.0	12.7	475.8	-7.2	182.4	13.8	-139.8
5	-66.5	101.6	-16.8	96.3	-27.3	64.9	3.3	-14.0
6	-253.5	430.8	1.2	290.7	-7.7	130.5	13.0	-41.1
7	213.1	261.4	149.3	-21.9	40.6	-54.7	-28.8	-16.1
8	-49.6	-27.8	-17.8	-2.6	16.7	-19.2	11.2	6.1
9	-380.1	-443.7	-228.1	-20.2	25.3	-17.3	49.9	43.3
10	-83.7	105.1	11.8	62.0	-9.7	-12.0	23.7	-20.7

HARMONIC	LOWER ROTOR EDGEWISE BENDING MOMENT .1R COS	SIN	LOWER ROTOR PITCH LINK LOAD COS	SIN
0	-4049.4		-90.4	
1	2749.4	1306.1	-212.3	-53.7
2	2414.3	-920.3	154.6	75.9
3	539.0	409.3	34.7	106.4
4	1.0	35.9	-21.8	-7.4
5	60.8	54.4	30.2	26.5
6	-8.2	-111.4	15.8	35.3
7	67.5	-490.5	0.2	-4.6
8	-151.6	-35.1	-28.3	-5.7
9	125.9	-40.7	-107.4	-9.5
10	-17.4	1.9	-7.2	-6.9

RUN 24 POINT 11

VKTS = 160.6 OMEG*R = 603.8 ALFS,C = 2.8 CLR/S,R =0.08465 CMY/S,R = 0.1025

V/OR = 0.449 RHO100 = 0.2137 CP/S = 0.003551 CDR/S,R =0.00762 CMX/S,R =-0.0174

	UPPER ROTOR BLADE NORMAL BENDING MOMENT				UR EDGEWISE	UR PITCH	UPPER ROTOR
	.1R	.2R	.3R	.6R	BENDING .1R	LINK LOAD	SHAFT STRESS
PSI							
0.00	-50428.	-1671.	-2082.	-393.	0.	-578.	-1524.
11.25	-50373.	-2020.	-2334.	-549.	0.	-522.	-2463.
22.50	-50173.	-1925.	-2142.	-1284.	0.	-615.	-2558.
33.75	-50152.	-981.	-1636.	-3217.	0.	-522.	-2592.
45.00	-50082.	81.	-1393.	-4890.	0.	-124.	-3285.
56.25	-50177.	272.	-1465.	-4749.	0.	109.	-3585.
67.50	-50220.	14.	-1356.	-3907.	0.	-75.	-2454.
78.75	-49689.	415.	-956.	-3996.	0.	-315.	-678.
90.00	-49066.	1421.	-569.	-4397.	0.	-397.	677.
101.25	-48929.	1899.	-461.	-3878.	0.	-464.	1938.
112.50	-48967.	1246.	-839.	-2795.	0.	-480.	3658.
123.75	-49131.	105.	-1549.	-2304.	0.	-382.	5065.
135.00	-49622.	-485.	-1932.	-3077.	0.	-364.	5017.
146.25	-49824.	-219.	-1788.	-4932.	0.	-507.	3900.
157.50	-49315.	102.	-1785.	-6554.	0.	-701.	3280.
168.75	-48776.	-708.	-2430.	-6471.	0.	-900.	3928.
180.00	-48751.	-2788.	-3483.	-5065.	0.	-953.	5303.
191.25	-49012.	-4816.	-4446.	-4139.	0.	-703.	6574.
202.50	-49319.	-5596.	-4922.	-4382.	0.	-430.	7205.
213.75	-49679.	-5297.	-4769.	-5016.	0.	-471.	7140.
225.00	-50118.	-4586.	-4273.	-5350.	0.	-661.	6776.
236.25	-50395.	-3851.	-3851.	-4900.	0.	-728.	6273.
247.50	-50076.	-3560.	-3649.	-3178.	0.	-716.	5496.
258.75	-49397.	-3819.	-3538.	-811.	0.	-690.	4919.
270.00	-49157.	-3830.	-3268.	717.	0.	-649.	5094.
281.25	-49282.	-3143.	-2763.	1034.	0.	-677.	5317.
292.50	-49055.	-2340.	-2289.	722.	0.	-779.	4542.
303.75	-48474.	-1682.	-2029.	-227.	0.	-813.	2974.
315.00	-47877.	-894.	-1819.	-1581.	0.	-752.	1481.
326.25	-47521.	-365.	-1596.	-2005.	0.	-720.	529.
337.50	-48060.	-615.	-1540.	-1140.	0.	-752.	77.
348.75	-49475.	-1216.	-1731.	-393.	0.	-720.	-452.

RUN 24 POINT 11

VKTS = 160.6 OMEG*R = 603.8 ALFS,C = 2.8 CLR/S,R =0.08466 CMY/S,R = 0.1025

V/OR = 0.449 RHO100 = 0.2137 CP/S = 0.003551 CDR/S,R =0.00762 CMX/S,R =-0.0174

PSI	LOWER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	LR EDGEWISE BENDING .1R	LR PITCH LINK LOAD
300.00	6167.	4126.	2714.	-300.	-4206.	-141.
288.75	5987.	4621.	3320.	137.	-5425.	-268.
277.50	7410.	5037.	3803.	294.	-7134.	-319.
266.25	9209.	6100.	4076.	178.	-8199.	-67.
255.00	8089.	6258.	4013.	192.	-7951.	95.
243.75	6209.	5159.	3573.	106.	-7447.	46.
232.50	6289.	4364.	2786.	-357.	-7822.	99.
221.25	6132.	4010.	1944.	-846.	-8147.	221.
210.00	4368.	3151.	1300.	-1152.	-7150.	168.
198.75	2587.	2009.	640.	-1376.	-5797.	108.
187.50	460.	774.	-235.	-1351.	-5425.	223.
176.25	-2555.	-922.	-1020.	-1013.	-5189.	269.
165.00	-4080.	-2249.	-1348.	-692.	-4066.	167.
153.75	-3411.	-2211.	-1200.	-473.	-3024.	197.
142.50	-2972.	-1603.	-735.	-164.	-3105.	270.
131.25	-2996.	-1297.	-156.	152.	-3802.	50.
120.00	-1828.	-754.	367.	301.	-4435.	-251.
108.75	-507.	198.	829.	384.	-4921.	-302.
97.50	-874.	661.	1199.	523.	-5153.	-338.
86.25	-1833.	352.	1242.	623.	-5212.	-482.
75.00	-1974.	-130.	798.	544.	-5349.	-387.
63.75	-2546.	-682.	53.	336.	-5003.	-157.
52.50	-4380.	-1657.	-650.	150.	-3374.	-224.
41.25	-5481.	-2668.	-1188.	-87.	-1163.	-313.
30.00	-4911.	-2993.	-1686.	-490.	141.	-43.
18.75	-4991.	-3057.	-2172.	-784.	541.	136.
7.50	-6477.	-3658.	-2445.	-741.	1165.	-93.
356.25	-6756.	-4167.	-2404.	-650.	1914.	-245.
345.00	-4996.	-3594.	-2061.	-663.	1471.	-178.
333.75	-2651.	-2199.	-1205.	-556.	-409.	-309.
322.50	593.	-282.	242.	-440.	-2397.	-493.
311.25	4493.	2205.	1729.	-477.	-3507.	-330.

RUN 24 POINT 12

VKTS =	160.6	OMEG*R =	606.2	ALFS,C =	2.8	CLR/S,R =0.08466	CMY/S,R = 0.1019
V/CR =	0.447	RHO100 =	0.2137	CP/S =	0.003623	CDR/S,R =0.00751	CMX/S,R =-0.0187

UPPER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R COS	.1R SIN	.2R COS	.2R SIN	.3R COS	.3R SIN	.6R COS	.6R SIN
0	-14554.3		-1397.1		-2210.5		-2865.1	
1	189.7	308.3	481.6	2577.8	566.9	1421.4	1572.2	-1183.6
2	-138.6	-204.4	-593.6	-1064.8	-423.7	-603.4	-464.2	-584.1
3	297.9	-902.4	-69.7	-22.2	-36.2	23.6	439.3	378.6
4	-225.9	411.1	-220.8	-629.5	-49.6	-271.5	917.0	878.3
5	236.0	27.3	-321.6	471.5	-100.9	242.1	215.8	-726.3
6	-320.8	154.5	-91.3	-445.4	-94.6	-231.2	263.9	375.4
7	591.1	-689.7	151.3	-24.5	17.6	-55.8	-215.0	66.2
8	-204.5	392.7	4.9	71.8	-19.1	0.5	-130.3	-91.4
9	10.9	-121.7	50.2	99.8	14.5	-18.9	-187.2	-106.4
10	-232.4	472.0	25.4	-5.6	14.8	-0.0	-33.5	-11.3

HARMONIC	UPPER ROTOR EDGEWISE BENDING MOMENT .1R COS	SIN	UPPER ROTOR PITCH LINK LOAD COS	SIN	UPPER ROTOR SHAFT STRESS COS	SIN
0	0.0		-573.9		2412.5	
1	0.0	0.0	61.5	216.7	-4235.1	-430.7
2	0.0	0.0	-91.6	131.4	-570.8	-730.4
3	0.0	0.0	-16.2	-11.1	474.2	-281.6
4	0.0	0.0	-83.3	-1.3	68.2	877.3
5	0.0	0.0	81.7	-135.0	99.5	-346.3
6	0.0	0.0	2.5	27.7	35.3	-4.4
7	0.0	0.0	73.4	3.7	-309.5	-138.6
8	0.0	0.0	20.6	30.8	30.2	-133.3
9	0.0	0.0	13.8	28.8	93.0	-50.9
10	0.0	0.0	-24.3	7.5	6.2	-3.2

RUN 24 POINT 12

VKTS = 160.6	OMEG*R = 606.2	ALFS,C = 2.8	CLR/S,R =0.08466	CMY/S,R = 0.1019
V/CR = 0.447	RHO100 = 0.2137	CP/S = 0.003623	CDR/S,R =0.00751	CMX/S,R =-0.0187

LOWER ROTOR BLADE NORMAL BENDING MOMENT

	.1R		.2R		.3R		.6R	
HARMONIC	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-186.1		260.0		376.3		-286.7	
1	-1392.1	-4426.7	-996.7	-2509.4	-422.9	-1258.1	158.3	322.1
2	-3783.7	433.5	-2798.3	612.7	-2178.6	153.7	-698.8	-97.5
3	-229.7	-476.9	-201.2	-225.1	-61.7	-98.7	65.0	125.6
4	-477.6	724.9	-83.0	477.9	-44.7	187.2	39.3	-120.4
5	-73.0	124.6	-9.1	110.4	-25.6	68.2	11.4	-17.8
6	-396.2	442.9	-68.5	337.8	-45.9	150.9	23.9	-46.1
7	139.3	301.3	145.1	19.8	55.6	-50.7	-12.2	-14.9
8	-75.3	-35.6	-27.7	-6.7	17.3	-13.0	9.9	5.4
9	-287.4	-520.2	-222.2	-63.5	33.2	-7.9	36.7	46.6
10	-123.5	60.7	-20.9	53.5	-13.6	-7.4	0.9	3.2

	LOWER ROTOR EDGEWISE BENDING MOMENT .1R		LOWER ROTOR PITCH LINK LOAD	
HARMONIC	COS	SIN	COS	SIN
0	-4047.1		-92.8	
1	2688.2	1256.9	-204.6	-56.7
2	2540.4	-1115.1	144.2	95.0
3	558.7	428.0	25.3	104.0
4	16.2	28.6	-24.6	-11.9
5	35.8	45.3	17.7	36.5
6	35.3	-127.2	6.2	45.6
7	196.3	-452.0	-0.3	-15.7
8	-129.6	-79.6	-25.9	-19.4
9	166.8	16.6	-101.9	-34.0
10	-5.2	-46.0	-14.1	-1.6

RUN 24 POINT 12

VKTS =	160.6	OMEG*R =	606.2	ALFS,C =	2.8	CLR/S,R =	0.08466	CMY/S,R =	0.1019
V/OR =	0.447	RHO100 =	0.2137	CP/S =	0.003623	CDR/S,R =	0.00751	CMX/S,R =	-0.0187

PSI	UPPER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	UR EDGEWISE BENDING .1R	UR PITCH LINK LOAD	UPPER ROTOR SHAFT STRESS
0.00	-14351.	-1981.	-2321.	-487.	0.	-536.	-1896.
11.25	-14228.	-2132.	-2426.	-531.	0.	-535.	-2352.
22.50	-15280.	-1759.	-2002.	-1286.	0.	-661.	-2038.
33.75	-15384.	-575.	-1400.	-3302.	0.	-501.	-1713.
45.00	-14275.	525.	-1155.	-4697.	0.	-41.	-2105.
56.25	-14805.	660.	-1150.	-4211.	0.	129.	-2128.
67.50	-15543.	506.	-945.	-3514.	0.	-123.	-702.
78.75	-14010.	1149.	-498.	-3920.	0.	-335.	1247.
90.00	-12487.	2242.	-99.	-4306.	0.	-405.	2632.
101.25	-12642.	2518.	-79.	-3625.	0.	-501.	4019.
112.50	-13553.	1626.	-597.	-2576.	0.	-501.	5855.
123.75	-14835.	534.	-1264.	-2351.	0.	-382.	6990.
135.00	-14366.	255.	-1452.	-3483.	0.	-381.	6460.
146.25	-13415.	734.	-1229.	-5419.	0.	-536.	5099.
157.50	-14649.	917.	-1316.	-6583.	0.	-750.	4380.
168.75	-17952.	-248.	-2095.	-5860.	0.	-968.	4812.
180.00	-17002.	-2564.	-3244.	-4137.	0.	-964.	5859.
191.25	-13156.	-4556.	-4204.	-3247.	0.	-654.	6642.
202.50	-12750.	-5176.	-4590.	-3689.	0.	-415.	6657.
213.75	-14409.	-4801.	-4396.	-4563.	0.	-496.	6114.
225.00	-14564.	-4118.	-3949.	-5070.	0.	-676.	5395.
236.25	-14694.	-3491.	-3632.	-4694.	0.	-760.	4496.
247.50	-15303.	-3433.	-3589.	-3010.	0.	-750.	3543.
258.75	-15460.	-3971.	-3633.	-717.	0.	-677.	3159.
270.00	-16099.	-4149.	-3453.	616.	0.	-641.	3448.
281.25	-16097.	-3537.	-3039.	656.	0.	-721.	3482.
292.50	-14173.	-2815.	-2662.	124.	0.	-806.	2564.
303.75	-13358.	-2189.	-2412.	-988.	0.	-808.	1081.
315.00	-14426.	-1348.	-2164.	-2400.	0.	-781.	-253.
326.25	-14256.	-799.	-1922.	-2580.	0.	-766.	-1025.
337.50	-13548.	-1080.	-1830.	-1347.	0.	-750.	-1202.
348.75	-14167.	-1650.	-1991.	-489.	0.	-672.	-1324.

RUN 24 POINT 12

VKTS =	160.6	UMEG*R =	606.2	ALFS,C =	2.8	CLR/S,R =0.08466	CMY/S,R = 0.1019
V/OR =	0.447	RHO100 =	0.2137	CP/S =	0.003623	CDR/S,R =0.00751	CMX/S,R =-0.0187

PSI	LOWER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	LR EDGEWISE BENDING .1R	LR PITCH LINK LOAD
300.00	5518.	3836.	2519.	-265.	-4126.	-126.
288.75	5236.	4084.	3025.	112.	-5475.	-322.
277.50	6895.	4565.	3451.	240.	-7218.	-338.
266.25	8421.	5597.	3674.	169.	-8261.	-27.
255.00	6942.	5508.	3535.	116.	-7900.	114.
243.75	5226.	4321.	3005.	-56.	-7504.	57.
232.50	5373.	3570.	2157.	-486.	-8155.	131.
221.25	4915.	3152.	1316.	-954.	-8339.	216.
210.00	3036.	2230.	705.	-1257.	-7005.	138.
198.75	1196.	1040.	32.	-1411.	-5755.	123.
187.50	-1187.	-333.	-896.	-1359.	-5504.	239.
176.25	-4062.	-2005.	-1638.	-1046.	-4932.	233.
165.00	-4925.	-2992.	-1778.	-691.	-3603.	138.
153.75	-3784.	-2607.	-1423.	-460.	-2786.	194.
142.50	-3166.	-1806.	-823.	-201.	-2998.	234.
131.25	-2929.	-1330.	-156.	139.	-3625.	-5.
120.00	-1551.	-653.	429.	344.	-4280.	-281.
108.75	-236.	347.	950.	424.	-4844.	-326.
97.50	-540.	865.	1408.	579.	-5196.	-352.
86.25	-1229.	666.	1512.	691.	-5500.	-442.
75.00	-1191.	293.	1052.	565.	-5785.	-334.
63.75	-1908.	-240.	304.	382.	-5313.	-161.
52.50	-3901.	-1297.	-351.	256.	-3516.	-242.
41.25	-4781.	-2293.	-873.	-49.	-1336.	-269.
30.00	-4007.	-2474.	-1400.	-504.	-175.	25.
18.75	-4446.	-2588.	-1911.	-720.	303.	134.
7.50	-6390.	-3468.	-2249.	-673.	1308.	-148.
356.25	-6660.	-4117.	-2323.	-660.	2248.	-268.
345.00	-4763.	-3512.	-2031.	-680.	1567.	-178.
333.75	-2395.	-2112.	-1144.	-612.	-422.	-340.
322.50	880.	-173.	292.	-574.	-2167.	-504.
311.25	4457.	2245.	1670.	-536.	-3211.	-282.

RUN 25 POINT 5
VKTS = 105.3 OMEG*R = 593.8 ALFS,C = 8.3 CLR/S,R =0.10721 CMY/S,R = 0.1998
V/OR = 0.299 RHO100 = 0.2277 CP/S = 0.001613 CDR/S,R =0.01670 CMX/S,R =-0.0105

UPPER ROTOR BLADE NORMAL BENDING MOMENT

	.1R		.2R		.3R		.6R	
HARMONIC	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-146.3		1670.6		-71.0		-947.8	
1	914.8	1356.6	837.3	600.4	735.3	167.2	1465.5	-1808.4
2	-147.4	-914.9	-119.1	-611.7	-146.0	-381.6	-836.9	-675.4
3	39.3	190.9	34.9	130.3	29.1	90.2	-27.7	276.8
4	352.5	-452.0	269.8	-203.7	118.4	-98.8	-266.8	440.4
5	-543.4	312.3	-300.5	81.7	-97.1	17.7	409.5	-212.3
6	4.8	-449.4	72.2	-270.9	5.9	-128.8	104.9	298.8
7	82.2	309.9	27.1	50.8	24.3	-75.2	-37.0	-79.3
8	-299.8	-63.5	-120.4	-47.7	-0.3	26.9	158.9	13.9
9	213.5	-499.3	191.0	-167.0	-17.9	-7.0	-83.9	337.7
10	-123.5	87.9	-36.3	1.7	43.0	-14.9	106.5	39.9

	UPPER ROTOR EDGEWISE BENDING MOMENT .1R		UPPER ROTOR PITCH LINK LOAD		UPPER ROTOR SHAFT STRESS	
HARMONIC	COS	SIN	COS	SIN	COS	SIN
0	-5086.8		-246.0		1523.0	
1	1866.4	836.6	-44.4	242.6	-1642.4	-1541.6
2	-665.2	746.0	7.0	34.0	-554.3	-467.4
3	-6.7	8.3	-74.1	21.9	320.6	-390.4
4	-90.3	38.5	-44.8	-35.2	-24.1	341.5
5	74.1	-79.9	27.2	-98.8	77.7	-559.6
6	2.5	-21.8	27.7	26.8	-40.6	72.6
7	495.5	-597.4	-22.4	99.8	-303.7	-407.0
8	-40.7	31.8	-23.8	61.0	68.9	149.8
9	-72.5	37.0	16.1	21.0	10.6	-47.1
10	-0.5	-12.4	9.1	-26.8	-16.9	35.0

RUN 25	POINT 5				
VKTS =	105.3	OMEG*R = 593.8	ALFS,C = 8.3	CLR/S,R =0.10721	CMY/S,R = 0.1998
V/OR =	0.299	RHO100 = 0.2277	CP/S = 0.001613	CDR/S,R =0.01670	CMX/S,R =-0.0103

LOWER ROTOR BLADE NORMAL BENDING MOMENT

	.1R		.2R		.3R		.6R	
HARMONIC	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	2042.2		1724.7		1337.5		-155.5	
1	-484.2	-2487.2	-293.8	-1418.2	-55.8	-641.5	138.9	277.4
2	-1109.5	632.7	-786.9	541.9	-680.9	332.8	-296.7	63.2
3	54.9	-196.9	13.8	-112.2	26.1	-51.6	20.2	-3.7
4	259.5	537.3	270.4	252.1	117.3	145.5	-72.4	-85.7
5	-254.8	105.5	-103.8	141.1	-56.0	87.5	29.1	-14.9
6	-78.8	645.9	136.6	356.4	20.9	185.5	3.3	-66.6
7	231.9	99.2	152.3	-32.2	79.1	-21.9	-23.4	-4.3
8	-82.4	-228.7	-87.5	-52.6	-2.7	-3.7	12.0	18.9
9	-28.8	52.3	-0.3	-1.2	-3.9	-27.5	6.8	-1.6
10	37.4	107.5	49.4	8.7	6.5	-2.2	-7.5	-8.6

	LOWER ROTOR EDGEWISE BENDING MOMENT .1R		LOWER ROTOR PITCH LINK LOAD	
HARMONIC	COS	SIN	COS	SIN
0	-5242.0		-8.6	
1	2711.7	299.6	-185.8	155.0
2	575.6	-865.3	-21.6	50.2
3	154.4	108.7	-17.3	-44.9
4	-12.9	33.1	-5.8	-10.2
5	18.1	80.5	26.1	-7.1
6	-94.4	-85.2	52.5	23.9
7	673.5	1019.6	10.5	-15.0
8	-19.6	9.3	-11.3	19.7
9	10.7	3.4	15.6	19.5
10	0.3	10.4	24.2	10.7

RUN 25 POINT 5

VKTS = 105.3 OMEG*R = 593.8 ALFS,C = 8.3 CLR/S,R =0.10721 CMY/S,R = 0.1998

V/CR = 0.299 RHO100 = 0.2277 CP/S = 0.001613 CDR/S,R =0.01670 CMX/S,R =-0.0103

PSI	UPPER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	UR EDGEWISE BENDING .1R	UR PITCH LINK LOAD	UPPER ROTOR SHAFT STRESS
0.00	347.	2527.	624.	45.	-3524.	-369.	-581.
11.25	-4.	1913.	258.	-2.	-3922.	-217.	-1494.
22.50	743.	2062.	202.	-1196.	-3645.	-239.	-1619.
33.75	985.	2425.	360.	-1727.	-2494.	-275.	-1332.
45.00	338.	2180.	333.	-1414.	-1608.	-46.	-1255.
56.25	337.	1876.	156.	-1629.	-2064.	309.	-1369.
67.50	1106.	2081.	28.	-2170.	-3251.	301.	-974.
78.75	1105.	2242.	46.	-2210.	-3591.	-80.	21.
90.00	841.	2237.	307.	-2311.	-3172.	-315.	829.
101.25	2040.	2715.	507.	-2860.	-3726.	-220.	1214.
112.50	2859.	3070.	207.	-2722.	-5470.	-51.	1798.
123.75	729.	2135.	-235.	-1447.	-6539.	32.	2707.
135.00	-1332.	990.	-277.	-907.	-6261.	-2.	3055.
146.25	193.	1391.	-206.	-2407.	-6220.	-110.	2090.
157.50	2111.	2319.	-344.	-4084.	-7369.	-144.	613.
168.75	925.	1960.	-497.	-4063.	-8502.	-120.	607.
180.00	-1066.	947.	-724.	-3408.	-8238.	-173.	2493.
191.25	-2098.	323.	-1175.	-3059.	-6980.	-213.	4087.
202.50	-3434.	-357.	-1517.	-2208.	-6272.	-194.	3899.
213.75	-4052.	-874.	-1501.	-1341.	-6671.	-292.	3269.
225.00	-2690.	-297.	-1248.	-1499.	-6956.	-443.	3477.
236.25	-1680.	644.	-824.	-1354.	-6053.	-474.	3700.
247.50	-1908.	877.	-397.	-31.	-4933.	-509.	3294.
258.75	-1327.	1035.	-194.	943.	-5093.	-549.	3092.
270.00	-496.	1569.	-19.	1450.	-5938.	-402.	3531.
281.25	-1058.	1727.	288.	2676.	-5738.	-317.	3782.
292.50	-1361.	1574.	431.	3461.	-4644.	-545.	3103.
303.75	-269.	1847.	370.	2669.	-4407.	-666.	1883.
315.00	490.	2249.	433.	1731.	-5324.	-409.	1187.
326.25	592.	2394.	642.	1164.	-5736.	-239.	1372.
337.50	1113.	2702.	825.	97.	-4786.	-396.	1517.
348.75	1241.	2975.	868.	-517.	-3652.	-507.	739.

RUN 25 POINT 5

VKTS = 105.3 OMEG*R = 593.8 ALFS,C = 8.3 CLR/S,R =0.10721 CMY/S,R = 0.1998

V/OR = 0.299 RHO100 = 0.2277 CP/S = 0.001613 CDR/S,R =0.01670 CMX/S,R =-0.0103

PSI	LOWER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	LR EDGEWISE BENDING .1R	LR PITCH LINK LOAD
300.00	4499.	3183.	2089.	-327.	-4365.	-209.
288.75	4108.	3141.	2106.	-195.	-5707.	-158.
277.50	4481.	3189.	2332.	-129.	-5313.	-272.
266.25	6212.	3965.	2750.	-225.	-5126.	-281.
255.00	6857.	4682.	2934.	-272.	-6748.	-72.
243.75	5275.	4216.	2653.	-151.	-8723.	57.
232.50	3850.	3142.	2148.	-103.	-8743.	34.
221.25	4051.	2717.	1799.	-290.	-7353.	51.
210.00	4504.	2883.	1700.	-556.	-7116.	133.
198.75	3975.	2817.	1595.	-726.	-8538.	201.
187.50	2613.	2183.	1203.	-753.	-9225.	218.
176.25	1051.	1201.	616.	-638.	-7630.	151.
165.00	-77.	373.	238.	-459.	-5596.	91.
153.75	-630.	7.	236.	-290.	-5624.	130.
142.50	-687.	-48.	380.	-130.	-6997.	174.
131.25	-67.	158.	548.	-1.	-6986.	175.
120.00	740.	699.	866.	82.	-5293.	191.
108.75	901.	1169.	1273.	182.	-4447.	177.
97.50	899.	1302.	1535.	302.	-5594.	132.
86.25	1258.	1432.	1603.	370.	-6689.	170.
75.00	1053.	1492.	1508.	415.	-5824.	232.
63.75	51.	1044.	1225.	473.	-4109.	194.
52.50	-476.	461.	918.	432.	-3733.	100.
41.25	-56.	422.	851.	222.	-4451.	-46.
30.00	725.	824.	983.	-62.	-4046.	-219.
18.75	1357.	1223.	1062.	-292.	-2074.	-222.
7.50	1193.	1308.	959.	-375.	-822.	-107.
356.25	266.	887.	682.	-316.	-1694.	-166.
345.00	-49.	377.	420.	-243.	-2933.	-308.
333.75	956.	575.	555.	-251.	-2540.	-291.
322.50	2551.	1546.	1189.	-309.	-1524.	-256.
311.25	3966.	2620.	1847.	-358.	-2181.	-282.

RUN 25 POINT 6
VKTS = 106.2 OMEG*R = 593.9 ALFS,C = 8.0 CLR/S,R =0.06654 CMY/S,R = 0.1385
V/OR = 0.302 RHO100 = 0.2272 CP/S = 0.000632 CDR/S,R =0.01263 CMX/S,R = 0.0028

UPPER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R COS	.1R SIN	.2R COS	.2R SIN	.3R COS	.3R SIN	.6R COS	.6R SIN
0	-351.4		1558.1		-163.8		-1076.5	
1	-2935.8	-1596.7	-1742.3	-1646.9	-1039.3	-1394.6	-66.8	-3437.5
2	-923.5	-217.1	-686.9	-112.3	-548.1	4.3	-1776.6	438.8
3	269.6	33.5	153.8	63.5	61.1	57.8	-294.7	378.1
4	720.6	-542.1	513.1	-240.1	246.9	-147.7	-691.0	556.7
5	117.0	238.2	34.2	117.5	25.9	-2.2	-77.6	-133.0
6	-142.8	-116.2	-82.9	-92.4	-49.3	-53.0	137.7	31.8
7	32.2	-5.3	35.5	-42.6	8.7	-27.9	10.6	48.3
8	-244.4	124.8	-112.3	21.1	-2.7	25.6	142.6	-71.0
9	-230.9	52.9	-97.5	-24.7	-4.5	-7.6	147.1	-32.9
10	-47.5	3.0	-10.7	9.4	3.7	16.3	39.3	0.4

HARMONIC	UPPER ROTOR EDGEWISE BENDING MOMENT .1R COS	SIN	UPPER ROTOR PITCH LINK LOAD COS	SIN	UPPER ROTOR SHAFT STRESS COS	SIN
0	-5368.0		-236.5		1074.0	
1	2027.3	493.1	-90.8	353.6	-5660.9	-17.6
2	1162.6	509.7	22.8	-13.4	-694.7	-411.1
3	-15.0	-83.9	-66.1	84.1	398.8	-80.1
4	24.5	-5.6	17.1	0.3	-283.2	378.5
5	4.8	-116.2	-72.1	-21.9	-407.9	-266.4
6	-1.1	-5.5	-32.4	-9.9	-74.2	-21.2
7	498.7	-388.4	-66.3	5.6	-256.5	-245.5
8	-0.7	3.8	23.8	66.8	18.6	146.5
9	0.1	47.5	-44.1	-4.3	74.9	9.2
10	21.8	10.1	-4.5	5.7	-59.1	35.7

RUN 25 POINT 6
VKTS = 106.2 OMEG*R = 593.9 ALFS,C = 8.0 CLR/S,R =0.06654 CMY/S,R = 0.1385
V/OR = 0.302 RHO100 = 0.2272 CP/S = 0.000632 CDR/S,R =0.01263 CMX/S,R = 0.0028

LOWER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R COS	.1R SIN	.2R COS	.2R SIN	.3R COS	.3R SIN	.6R COS	.6R SIN
0	-7023.9		-4716.4		-3114.9		-766.7	
1	109.3	1902.3	366.1	1557.2	360.2	1372.6	182.9	507.9
2	-414.6	960.7	-215.9	648.0	-201.7	380.7	-60.2	37.5
3	131.2	80.8	120.6	37.2	90.1	27.8	68.6	-46.9
4	-157.5	348.3	18.5	222.5	27.6	109.8	15.2	-68.9
5	-112.3	-517.5	-179.6	-253.5	-62.4	-123.2	19.8	62.6
6	-287.1	420.2	-37.1	290.6	-46.2	132.5	20.5	-46.3
7	160.5	92.0	88.3	31.6	34.3	46.1	-15.2	-7.1
8	-25.4	-76.6	-23.2	-9.2	5.3	14.5	7.1	4.5
9	-64.1	146.2	35.1	57.5	9.9	-7.2	10.6	-17.6
10	24.4	63.6	27.9	24.6	-12.0	23.9	2.8	-11.5

HARMONIC	LOWER ROTOR EDGEWISE BENDING MOMENT .1R COS	SIN	LOWER ROTOR PITCH LINK LOAD COS	SIN
0	-4568.5		-162.1	
1	463.4	-1296.6	-117.1	124.7
2	51.5	-449.4	24.0	27.8
3	-8.3	-20.9	-17.9	-6.2
4	-25.8	-12.4	-1.8	9.5
5	10.7	22.9	-19.9	-27.7
6	-1.9	-13.7	24.6	33.0
7	-777.2	1016.9	36.8	-27.7
8	-15.5	-9.7	-11.1	15.2
9	5.2	-50.9	5.9	7.3
10	-6.3	-7.6	32.6	21.3

RUN 25 POINT 6
VKTS = 106.2 OMEG*R = 593.9 ALFS,C = 8.0 CLR/S,R =0.06654 CMY/S,R = 0.1385
V/CR = 0.302 RHO100 = 0.2272 CP/S = 0.000632 CDR/S,R =0.01263 CMX/S,R = 0.0028

PSI	UPPER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	UR EDGEWISE BENDING .1R	UR PITCH LINK LOAD	UPPER ROTOR SHAFT STRESS
0.00	-3737.	-438.	-1461.	-3506.	-1645.	-549.	-5870.
11.25	-3765.	-800.	-1855.	-3585.	-2392.	-246.	-5517.
22.50	-4258.	-1117.	-2151.	-3060.	-2974.	-21.	-4472.
33.75	-5394.	-1624.	-2209.	-1925.	-2599.	2.	-3386.
45.00	-5137.	-1677.	-2063.	-1635.	-2395.	46.	-2804.
56.25	-3427.	-1001.	-1817.	-2411.	-3500.	87.	-2772.
67.50	-2105.	-182.	-1464.	-3142.	-5087.	-9.	-2218.
78.75	-1235.	495.	-1054.	-3629.	-5743.	-65.	-429.
90.00	-95.	1164.	-760.	-4055.	-5631.	56.	1688.
101.25	390.	1492.	-691.	-3819.	-5979.	125.	3367.
112.50	-337.	1147.	-804.	-2923.	-7004.	28.	4885.
123.75	-821.	764.	-870.	-2514.	-7567.	12.	6024.
135.00	39.	1162.	-623.	-3104.	-7032.	131.	6154.
146.25	1446.	2074.	-167.	-3948.	-6335.	116.	5543.
157.50	2242.	2679.	138.	-4257.	-6471.	-22.	4940.
168.75	2205.	2809.	270.	-3865.	-6942.	15.	4966.
180.00	1759.	2795.	435.	-2943.	-6676.	130.	5833.
191.25	1409.	2781.	601.	-1712.	-5780.	-66.	6509.
202.50	1447.	2836.	731.	-363.	-5458.	-455.	5884.
213.75	1810.	3096.	987.	923.	-6317.	-585.	4902.
225.00	2308.	3521.	1383.	1964.	-7341.	-501.	4847.
236.25	2938.	4022.	1758.	2633.	-7249.	-542.	4811.
247.50	3537.	4540.	2056.	3018.	-6553.	-637.	3704.
258.75	3473.	4729.	2222.	3456.	-6691.	-556.	2356.
270.00	2572.	4314.	2108.	4005.	-7424.	-419.	1586.
281.25	1564.	3616.	1673.	4146.	-7252.	-442.	792.
292.50	552.	2855.	989.	3696.	-6056.	-592.	-561.
303.75	-1072.	1780.	219.	3023.	-5090.	-690.	-1959.
315.00	-2476.	724.	-351.	1804.	-4805.	-595.	-2694.
326.25	-2368.	450.	-607.	-485.	-4426.	-390.	-2970.
337.50	-1934.	606.	-783.	-2722.	-3336.	-374.	-3718.
348.75	-2776.	245.	-1080.	-3513.	-2027.	-559.	-5055.

RUN 25 POINT 6

VKTS = 106.2 OMEG*R = 593.9 ALFS,C = 8.0 CLR/S,R =0.06654 CMY/S,R = 0.1385

V/OR = 0.302 RHO100 = 0.2272 CP/S = 0.000632 CDR/S,R =0.01263 CMX/S,R = 0.0028

	LOWER ROTOR BLADE NORMAL BENDING MOMENT				LR EDGEWISE	LR PITCH
	.1R	.2R	.3R	.6R	BENDING .1R	LINK LOAD
PSI						
300.00	-9597.	-6610.	-4567.	-1199.	-4078.	-316.
288.75	-9493.	-6612.	-4595.	-1237.	-3092.	-325.
277.50	-8767.	-6235.	-4256.	-1266.	-1948.	-423.
266.25	-7475.	-5555.	-3907.	-1333.	-2888.	-338.
255.00	-7206.	-5198.	-3946.	-1276.	-4805.	-151.
243.75	-8427.	-5660.	-4193.	-1073.	-4964.	-175.
232.50	-8957.	-6201.	-4263.	-976.	-3533.	-278.
221.25	-7671.	-5879.	-4093.	-1097.	-3234.	-222.
210.00	-6330.	-5042.	-3773.	-1262.	-4858.	-84.
198.75	-6424.	-4653.	-3516.	-1298.	-6100.	48.
187.50	-7441.	-4980.	-3596.	-1178.	-5285.	91.
176.25	-8358.	-5557.	-3842.	-982.	-3918.	-35.
165.00	-8569.	-5808.	-3795.	-815.	-4286.	-120.
153.75	-7855.	-5500.	-3430.	-720.	-5934.	-20.
142.50	-6583.	-4774.	-2973.	-671.	-6388.	18.
131.25	-5550.	-3935.	-2462.	-610.	-5077.	-54.
120.00	-5270.	-3383.	-2028.	-470.	-4306.	-24.
108.75	-5439.	-3300.	-1845.	-276.	-5590.	9.
97.50	-5384.	-3322.	-1756.	-141.	-7105.	-80.
86.25	-5061.	-3115.	-1598.	-90.	-6536.	-115.
75.00	-4819.	-2887.	-1478.	-95.	-4889.	-77.
63.75	-4544.	-2778.	-1443.	-184.	-4894.	-80.
52.50	-4269.	-2667.	-1472.	-313.	-6449.	-60.
41.25	-4490.	-2713.	-1623.	-380.	-6747.	-73.
30.00	-5062.	-3019.	-1828.	-434.	-4959.	-218.
18.75	-5622.	-3360.	-2041.	-522.	-3532.	-276.
7.50	-6669.	-3899.	-2476.	-538.	-4114.	-193.
356.25	-8105.	-4860.	-3131.	-517.	-5054.	-245.
345.00	-8707.	-5629.	-3626.	-641.	-4238.	-368.
333.75	-8517.	-5745.	-3836.	-854.	-2373.	-339.
322.50	-8754.	-5812.	-4006.	-992.	-1854.	-311.
311.25	-9351.	-6243.	-4285.	-1094.	-3163.	-351.

RUN 25 POINT 7
VKTS = 104.7 OMEG*R = 590.0 ALFS,C = 8.3 CLR/S,R =0.10581 CMY/S,R = 0.1970
V/OR = 0.300 RHO100 = 0.2269 CP/S = 0.002266 CDR/S,R =0.01620 CMX/S,R =-0.0051

UPPER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R COS	.1R SIN	.2R COS	.2R SIN	.3R COS	.3R SIN	.6R COS	.6R SIN
0	1460.1		2843.5		774.4		-230.9	
1	615.0	129.8	740.1	-281.1	695.3	-476.0	1529.0	-2463.6
2	-1430.6	-1379.5	-1020.9	-1034.7	-785.9	-668.2	-2334.1	-1288.9
3	-120.7	83.9	-63.8	49.0	-32.7	29.2	-167.4	-1.1
4	300.6	-458.7	246.0	-225.7	94.3	-129.8	-332.1	379.8
5	-258.6	292.7	-159.5	141.2	-24.7	31.6	97.3	-196.3
6	158.6	-459.2	160.1	-258.6	47.0	-128.2	6.7	327.6
7	48.8	193.4	59.2	27.8	50.7	-67.2	-59.2	-41.9
8	-339.7	-166.2	-118.2	-99.2	-6.9	37.5	222.9	56.5
9	335.7	-202.1	174.7	-14.8	-0.8	-11.8	-172.8	152.0
10	-212.5	70.5	-70.7	10.0	40.9	29.2	63.3	11.5

HARMONIC	UPPER ROTOR EDGEWISE BENDING MOMENT .1R COS	SIN	UPPER ROTOR PITCH LINK LOAD COS	SIN	UPPER ROTOR SHAFT STRESS COS	SIN
0	-5010.9		-227.9		1738.8	
1	2953.2	-36.1	-162.2	273.7	-3460.3	158.0
2	504.6	2078.8	144.6	29.7	-788.6	-539.1
3	292.8	70.1	-117.8	-8.0	209.2	-37.1
4	12.1	61.7	59.9	1.0	-276.0	581.8
5	79.0	-295.1	-51.3	-98.8	-76.1	-234.1
6	-93.0	17.4	15.5	-24.9	79.5	11.6
7	785.9	-128.4	-100.5	-32.1	-200.2	-542.7
8	-98.9	25.6	-0.7	15.2	-21.9	241.2
9	-42.4	-16.4	2.3	-26.1	-4.1	-18.7
10	35.0	73.2	70.4	25.6	-92.8	-21.1

RUN 25 POINT 7

VKTS =	104.7	OMEG*R =	590.0	ALFS,C =	8.3	CLR/S,R =	0.10581	CMY/S,R =	0.1970
V/OR =	0.300	RHO100 =	0.2269	CP/S =	0.002266	CDR/S,R =	0.01620	CMX/S,R =	-0.0051

LOWER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R COS	.1R SIN	.2R COS	.2R SIN	.3R COS	.3R SIN	.6R COS	.6R SIN
0	252.1		468.3		475.6		-260.4	
1	-1735.1	349.2	-982.8	647.7	-550.1	762.4	81.3	483.3
2	-1139.0	453.8	-833.2	409.8	-724.9	228.6	-323.4	34.0
3	37.1	-216.2	8.6	-125.0	28.7	-51.1	28.5	0.2
4	206.1	819.1	309.5	372.6	139.8	173.2	-69.2	-140.9
5	-138.7	49.0	-40.8	52.3	-7.7	42.1	3.3	-9.8
6	193.4	682.9	285.1	290.9	101.2	175.0	-30.5	-60.4
7	235.0	47.0	115.5	-27.9	48.8	10.6	-28.1	0.3
8	-165.7	-91.9	-69.9	20.6	12.5	13.7	14.5	4.2
9	86.5	201.2	55.5	24.0	-27.4	-20.7	-12.6	-17.1
10	-3.2	81.7	17.8	26.8	-3.9	9.4	-4.2	-9.2

HARMONIC	LOWER ROTOR EDGEWISE BENDING MOMENT .1R COS	SIN	LOWER ROTOR PITCH LINK LOAD COS	SIN
0	-5122.2		-39.2	
1	2400.4	-317.5	-182.5	161.2
2	967.0	-886.8	-18.2	34.4
3	32.5	125.8	-17.0	-53.1
4	-13.2	-22.7	-2.6	-0.5
5	-64.6	163.1	21.2	-14.5
6	-95.2	-27.0	57.9	14.2
7	212.2	1111.2	7.1	-5.0
8	-60.8	-19.1	-14.5	20.2
9	-41.5	-44.0	0.3	-23.3
10	45.2	34.4	40.6	8.1

RUN 25 POINT 7
VKTS = 104.7 OMEG*R = 590.0 ALFS,C = 8.3 CLR/S,R =0.10581 CMY/S,R = 0.1970
V/CR = 0.300 RHO100 = 0.2269 CP/S = 0.002266 CDR/S,R =0.01620 CMX/S,R =-0.0051

PSI	UPPER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	UR EDGEWISE BENDING .1R	UR PITCH LINK LOAD	UPPER ROTOR SHAFT STRESS
0.00	557.	2790.	852.	-1357.	-583.	-368.	-2893.
11.25	-275.	1942.	239.	-1606.	-647.	-441.	-2717.
22.50	-168.	1618.	-104.	-2150.	-1163.	-280.	-1853.
33.75	240.	1901.	109.	-2281.	-832.	17.	-1113.
45.00	609.	2266.	431.	-1781.	-324.	-11.	-643.
56.25	1174.	2464.	555.	-1374.	-1213.	-114.	-533.
67.50	2184.	2863.	685.	-1269.	-3344.	41.	-375.
78.75	2931.	3425.	897.	-970.	-5172.	22.	842.
90.00	2349.	3671.	1142.	-561.	-5834.	-210.	2728.
101.25	3217.	3838.	1317.	-682.	-6126.	-155.	3901.
112.50	4045.	4044.	1085.	-970.	-7377.	-2.	4524.
123.75	2767.	3372.	543.	-563.	-9064.	-57.	5407.
135.00	359.	2105.	317.	-504.	-9296.	-42.	5872.
146.25	912.	2047.	366.	-2355.	-8361.	1.	5004.
157.50	2918.	2904.	136.	-4585.	-8394.	-84.	3497.
168.75	1874.	2588.	-260.	-4770.	-9234.	114.	3009.
180.00	-684.	1289.	-524.	-3811.	-8720.	491.	4171.
191.25	-1495.	614.	-807.	-3406.	-6627.	351.	5354.
202.50	-1797.	441.	-996.	-2802.	-4881.	-119.	4726.
213.75	-2093.	387.	-724.	-1573.	-4776.	-320.	3411.
225.00	-669.	1161.	-106.	-781.	-5650.	-406.	3485.
236.25	1167.	2482.	572.	-38.	-5713.	-555.	3994.
247.50	1580.	3239.	1205.	1654.	-4538.	-610.	3113.
258.75	1981.	3586.	1647.	3400.	-4047.	-626.	1836.
270.00	2962.	4134.	1978.	4369.	-5255.	-588.	1758.
281.25	3280.	4640.	2399.	5132.	-6333.	-434.	2246.
292.50	3284.	4841.	2622.	5626.	-5980.	-504.	1973.
303.75	3444.	4776.	2386.	5281.	-5334.	-779.	712.
315.00	2980.	4386.	2051.	4362.	-5217.	-695.	-742.
326.25	2370.	3927.	1854.	2935.	-4863.	-355.	-1410.
337.50	2352.	3744.	1617.	865.	-3618.	-260.	-1520.
348.75	1867.	3506.	1298.	-823.	-1833.	-316.	-2122.

RUN 25 POINT 7

VKTS =	104.7	OMEG*R =	590.0	ALFS,C =	8.3	CLR/S,R =0.10581	CMY/S,R = 0.1970
V/OR =	0.300	RHO100 =	0.2269	CP/S =	0.002266	CDR/S,R =0.01620	CMX/S,R =-0.0051

	LOWER ROTOR BLADE NORMAL BENDING MOMENT				LR EDGEWISE	LR PITCH
	.1R	.2R	.3R	.6R	BENDING .1R	LINK LOAD
PSI						
300.00	219.	5.	-75.	-678.	-4155.	-233.
288.75	104.	175.	-40.	-601.	-5176.	-205.
277.50	-102.	144.	166.	-454.	-4805.	-293.
266.25	954.	566.	558.	-417.	-4878.	-297.
255.00	2145.	1233.	732.	-454.	-6581.	-147.
243.75	1624.	1265.	605.	-405.	-8219.	-45.
232.50	448.	669.	424.	-357.	-7741.	-3.
221.25	843.	431.	332.	-511.	-6430.	43.
210.00	2406.	993.	407.	-800.	-6773.	64.
198.75	2913.	1620.	626.	-965.	-8103.	142.
187.50	1797.	1484.	674.	-887.	-7948.	238.
176.25	491.	767.	393.	-666.	-6159.	141.
165.00	-146.	214.	163.	-424.	-4904.	17.
153.75	-358.	101.	346.	-189.	-5579.	106.
142.50	177.	397.	804.	1.	-7030.	167.
131.25	1663.	1163.	1278.	87.	-7014.	105.
120.00	2707.	2024.	1702.	152.	-5629.	184.
108.75	2440.	2330.	2011.	301.	-5412.	258.
97.50	2027.	2189.	2113.	450.	-6905.	109.
86.25	1976.	2094.	2044.	512.	-7490.	62.
75.00	1340.	1895.	1860.	543.	-6047.	219.
63.75	211.	1299.	1478.	533.	-4726.	204.
52.50	-622.	519.	873.	398.	-4931.	14.
41.25	-1190.	-138.	320.	170.	-5161.	-107.
30.00	-1249.	-409.	116.	-109.	-3797.	-209.
18.75	-681.	-208.	103.	-433.	-1727.	-265.
7.50	-1011.	-194.	-147.	-628.	-1110.	-180.
356.25	-2855.	-1027.	-715.	-551.	-2162.	-164.
345.00	-4106.	-2071.	-1245.	-401.	-2718.	-290.
333.75	-3456.	-2268.	-1357.	-407.	-1691.	-326.
322.50	-1996.	-1597.	-957.	-518.	-883.	-283.
311.25	-647.	-677.	-373.	-625.	-2029.	-279.

RUN 25 POINT 8
VKTS = 104.8 OMEG*R = 591.9 ALFS,C = 8.4 CLR/S,R =0.11600 CMY/S,R = 0.2138
V/OR = 0.299 RHO100 = 0.2265 CP/S = 0.001886 CDR/S,R =0.01780 CMX/S,R =-0.0055

UPPER ROTOR BLADE NORMAL BENDING MOMENT

	.1R		.2R		.3R		.6R	
HARMONIC	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	2216.0		3375.1		1115.1		-25.6	
1	968.4	2872.6	881.2	1696.0	818.3	883.3	1751.2	-1187.8
2	-676.0	-1408.9	-513.3	-1021.6	-431.2	-673.2	-1578.1	-1259.8
3	-49.9	153.3	-38.3	97.7	-20.3	58.4	-207.9	31.4
4	371.6	-251.6	260.2	-109.3	105.5	-78.3	-408.7	249.9
5	-484.0	228.2	-259.8	35.1	-64.6	-3.7	316.0	-126.4
6	189.5	-383.8	163.9	-212.6	52.4	-117.7	-31.1	285.0
7	-24.7	279.7	49.4	68.9	67.0	-50.4	-56.2	-60.0
8	-234.8	-124.6	-87.7	-80.0	4.0	25.0	138.2	48.9
9	337.2	-106.4	155.9	26.6	-13.7	-9.6	-191.4	113.3
10	-121.1	-50.9	-28.6	-25.3	18.0	23.5	26.1	101.1

	UPPER ROTOR EDGEWISE BENDING MOMENT .1R		UPPER ROTOR PITCH LINK LOAD		UPPER ROTOR SHAFT STRESS	
HARMONIC	COS	SIN	COS	SIN	COS	SIN
0	-5088.1		-274.2		1866.1	
1	2873.5	240.3	-148.6	281.0	-1388.4	-775.1
2	-458.2	1223.6	98.4	61.1	-438.3	-442.8
3	148.0	115.3	-136.9	-43.6	231.3	-160.7
4	3.7	54.3	28.3	33.2	-375.8	206.7
5	127.0	-109.8	8.0	-150.6	-45.6	-553.9
6	-43.0	-25.6	-2.9	-25.6	48.9	86.4
7	891.0	68.2	-20.9	13.7	-0.8	-655.0
8	-67.0	25.7	-7.6	56.0	35.2	156.9
9	-17.5	-29.6	32.9	-13.8	-50.0	-25.4
10	-8.0	10.2	2.4	-7.9	-13.7	-7.2

PUN 25 POINT 8

VKTS =	104.8	OMEG*R =	591.9	ALFS,C =	8.4	CLR/S,R =	0.11600	CMY/S,R =	0.2138
V/OR =	0.299	RHO100 =	0.2265	CP/S =	0.001886	CDR/S,R =	0.01780	CMX/S,R =	-0.0055

LOWER ROTOR BLADE NORMAL BENDING MOMENT

	.1R		.2R		.3R		.6R	
HARMONIC	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	1142.6		1091.7		893.3		-211.9	
1	-1088.0	-3386.3	-776.1	-2057.4	-351.6	-1111.0	120.3	169.2
2	-258.6	616.0	-180.6	430.6	-215.0	277.7	-142.3	60.1
3	59.9	-244.8	24.6	-152.9	41.2	-83.7	31.0	-21.8
4	244.0	518.5	270.0	223.7	131.2	109.4	-57.0	-84.0
5	-373.8	-106.9	-218.5	44.4	-86.3	22.5	49.5	12.5
6	314.7	585.3	317.7	210.3	129.5	138.7	-41.5	-53.7
7	296.8	-80.2	117.7	-128.8	69.7	-44.3	-30.6	17.4
8	-117.3	-35.5	-42.7	18.6	0.5	5.2	8.2	4.0
9	236.4	230.1	112.2	-7.0	-34.0	-12.4	-24.8	-14.0
10	46.5	57.0	32.1	3.2	0.2	4.6	-10.1	-5.9

	LOWER ROTOR EDGEWISE BENDING MOMENT .1R		LOWER ROTOR PITCH LINK LOAD	
HARMONIC	COS	SIN	COS	SIN
0	-5190.1		-51.4	
1	2249.7	-366.9	-157.9	145.1
2	-209.6	-253.0	19.5	31.2
3	2.5	74.9	-28.0	-26.8
4	-24.1	-30.3	-2.7	7.2
5	84.7	59.6	0.1	-18.5
6	-91.7	-2.6	54.4	-8.8
7	438.0	772.7	14.4	-29.0
8	-82.7	10.5	-0.2	29.9
9	-60.4	-23.9	25.1	-31.0
10	-1.3	-6.6	16.7	-14.4

RUN 25 POINT 8
VKTS = 104.8 OMEG*R = 591.9 ALFS,C = 8.4 CLR/S,R =0.11600 CMY/S,R = 0.2136
V/OR = 0.299 RHO100 = 0.2265 CP/S = 0.001886 CDR/S,R =0.01780 CMX/S,R =-0.0055

PSI	UPPER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	UR EDGEWISE BENDING .1R	UR PITCH LINK LOAD	UPPER ROTOR SHAFT STRESS
0.00	2492.	3958.	1650.	-267.	-1639.	-421.	-131.
11.25	2304.	3566.	1338.	-215.	-1757.	-454.	-1127.
22.50	2813.	3537.	1199.	-749.	-2425.	-398.	-872.
33.75	3356.	3986.	1477.	-1058.	-2161.	-206.	144.
45.00	3522.	4386.	1855.	-541.	-1185.	18.	767.
56.25	3899.	4546.	1977.	-102.	-1241.	146.	452.
67.50	4712.	4785.	1978.	-34.	-2891.	93.	-80.
78.75	5298.	5171.	2126.	130.	-4495.	-95.	295.
90.00	5522.	5517.	2447.	115.	-4725.	-205.	1390.
101.25	6236.	5914.	2679.	-343.	-4660.	-134.	2065.
112.50	6972.	6168.	2469.	-511.	-5955.	-47.	2363.
123.75	5680.	5481.	1930.	75.	-7951.	-74.	3242.
135.00	3108.	4096.	1567.	373.	-8613.	-129.	4138.
146.25	2752.	3578.	1404.	-913.	-7921.	-130.	3408.
157.50	4235.	4047.	1060.	-3020.	-7925.	-118.	1468.
168.75	3653.	3767.	557.	-3908.	-9172.	-67.	830.
180.00	998.	2381.	77.	-3491.	-9683.	110.	2376.
191.25	-844.	1215.	-479.	-3174.	-8251.	267.	3980.
202.50	-1930.	543.	-995.	-2825.	-6405.	132.	3783.
213.75	-2918.	-53.	-1123.	-1885.	-6009.	-224.	2769.
225.00	-2455.	0.	-892.	-1303.	-6614.	-481.	2714.
236.25	-1066.	874.	-513.	-1148.	-6407.	-616.	3405.
247.50	-718.	1567.	-41.	-90.	-5004.	-771.	3504.
258.75	-606.	1841.	395.	1499.	-4023.	-765.	2869.
270.00	399.	2334.	723.	2459.	-4560.	-498.	2467.
281.25	1009.	2912.	1100.	3375.	-5417.	-378.	2697.
292.50	942.	3166.	1458.	4429.	-5083.	-621.	2876.
303.75	1482.	3361.	1556.	4433.	-4191.	-803.	2330.
315.00	2264.	3627.	1524.	3558.	-4223.	-649.	1489.
326.25	2440.	3756.	1616.	2706.	-4845.	-447.	1305.
337.50	2580.	3890.	1761.	1489.	-4482.	-403.	1604.
348.75	2780.	4086.	1802.	119.	-2909.	-408.	1196.

RUN 25 POINT 8
VKTS = 104.8 OMEG*R = 591.9 ALFS,C = 8.4 CLR/S,R =0.11600 CMY/S,R = 0.2138
V/CR = 0.299 RHO100 = 0.2265 CP/S = 0.001886 CDR/S,R =0.01780 CMX/S,R =-0.0055

PSI	LOWER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	LR EDGEWISE BENDING .1R	LR PITCH LINK LOAD
300.00	3526.	2534.	1747.	-373.	-3801.	-258.
288.75	3646.	2654.	1691.	-330.	-4539.	-219.
277.50	3580.	2665.	1791.	-245.	-4111.	-232.
266.25	4608.	3114.	2259.	-261.	-3878.	-318.
255.00	6204.	4009.	2631.	-353.	-5117.	-239.
243.75	5898.	4265.	2535.	-293.	-6767.	-40.
232.50	3960.	3400.	2160.	-121.	-7011.	-2.
221.25	3404.	2588.	1859.	-141.	-6252.	-72.
210.00	4679.	2807.	1801.	-403.	-6454.	1.
198.75	5141.	3320.	1868.	-644.	-7911.	182.
187.50	3638.	2968.	1684.	-674.	-8751.	243.
176.25	1599.	1797.	1054.	-550.	-7870.	139.
165.00	1.	598.	344.	-392.	-6573.	63.
153.75	-1307.	-260.	-6.	-253.	-6559.	108.
142.50	-1804.	-716.	-47.	-171.	-7439.	123.
131.25	-1092.	-602.	-12.	-182.	-7411.	71.
120.00	-535.	-179.	89.	-199.	-6089.	113.
108.75	-1139.	-125.	227.	-97.	-5188.	177.
97.50	-1759.	-444.	225.	48.	-5723.	84.
86.25	-1752.	-620.	91.	123.	-6176.	-5.
75.00	-2022.	-710.	20.	178.	-5074.	64.
63.75	-2352.	-908.	15.	210.	-3694.	107.
52.50	-1914.	-902.	-64.	119.	-3869.	48.
41.25	-1510.	-684.	-127.	-14.	-4745.	-14.
30.00	-1434.	-539.	34.	-79.	-4345.	-134.
18.75	-487.	-154.	354.	-181.	-2957.	-260.
7.50	637.	540.	565.	-312.	-2448.	-193.
356.25	186.	702.	554.	-273.	-3206.	-99.
345.00	-563.	255.	443.	-134.	-3811.	-227.
333.75	411.	311.	479.	-149.	-3292.	-346.
322.50	2089.	1181.	870.	-279.	-2427.	-277.
311.25	3028.	2068.	1451.	-356.	-2598.	-234.

RUN 25 POINT 9

VKTS = 104.3 OMEG*R = 597.7 ALFS,C = 8.6 CLR/S,R =0.13770 CMY/S,R = 0.2565

V/OR = 0.295 RHO100 = 0.2265 CP/S = 0.001653 CDR/S,R =0.02220 CMX/S,R =-0.0028

UPPER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R COS	.1R SIN	.2R COS	.2R SIN	.3R COS	.3R SIN	.6R COS	.6R SIN
0	4676.6		5134.9		2231.5		678.3	
1	1253.2	10451.8	699.2	7108.8	703.1	4560.6	1424.8	2294.3
2	471.5	-979.0	233.3	-657.0	125.0	-475.3	-414.3	-550.9
3	144.4	239.0	39.7	155.3	3.3	80.9	-371.5	165.9
4	467.4	-350.7	326.2	-123.1	114.6	-83.1	-538.8	488.6
5	-373.4	533.6	-251.8	229.6	-73.0	78.2	240.3	-374.4
6	-186.6	-275.7	-73.8	-209.4	-77.7	-91.6	236.8	128.7
7	71.1	206.3	44.8	24.9	38.7	-71.7	2.1	-36.4
8	-134.2	130.6	-63.5	43.3	20.2	-5.9	30.1	-89.1
9	65.8	-76.6	66.4	-27.2	14.0	-5.8	-12.0	71.0
10	-66.9	26.5	-21.0	-12.5	17.0	-7.5	96.8	20.2

HARMONIC	UPPER ROTOR EDGEWISE BENDING MOMENT .1R COS	SIN	UPPER ROTOR PITCH LINK LOAD COS	SIN	UPPER ROTOR SHAFT STRESS COS	SIN
0	-5526.3		-344.4		2232.2	
1	2691.1	561.1	-152.1	292.6	-540.3	882.6
2	-1315.9	-930.7	-21.1	75.4	-435.1	-2.3
3	-5.9	6.9	-90.0	-76.1	139.3	-148.9
4	-16.1	-27.7	7.5	14.7	-213.0	-96.9
5	57.8	-54.8	57.8	-124.9	31.8	-553.7
6	50.8	-27.4	43.2	34.4	-17.8	131.0
7	647.0	-659.0	-116.7	173.3	-219.7	-671.5
8	-108.5	-23.9	27.7	56.4	134.9	38.5
9	1.5	2.4	-32.6	-11.3	57.5	-50.7
10	30.1	16.6	5.4	0.7	-78.7	-15.0

RUN 25	POINT 9								
VKTS =	104.3	OMEG*R =	597.7	ALFS,C =	8.6	CLR/S,R =	0.13770	CMY/S,R =	0.2565
V/OR =	0.295	RHO100 =	0.2265	CP/S =	0.001653	CDR/S,R =	0.02220	CMX/S,R =	-0.0028

LOWER ROTOR BLADE NORMAL BENDING MOMENT

	.1R		.2R		.3R		.6R	
HARMONIC	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	2842.6		2235.2		1659.0		-140.7	
1	383.7	-10540.8	-249.8	-7172.3	67.5	-4613.1	157.2	-374.9
2	902.4	883.7	702.9	507.5	483.3	365.6	125.7	70.2
3	139.5	-122.3	71.8	-107.7	63.1	-57.3	41.3	-28.0
4	96.6	118.9	120.8	58.4	65.8	51.3	-24.0	-31.9
5	-259.9	-434.2	-217.1	-144.0	-78.8	-56.2	43.0	53.2
6	-164.5	634.3	77.5	365.7	-3.3	189.0	6.2	-62.4
7	339.5	13.5	196.4	-113.7	98.6	-37.0	-32.2	3.8
8	-123.1	-171.4	-82.9	-6.3	6.4	10.4	13.5	13.1
9	-263.4	112.3	-48.8	98.5	-1.0	-19.6	21.7	-12.4
10	10.2	56.7	11.0	13.0	-13.9	2.1	-2.2	-9.3

	LOWER ROTOR EDGEWISE BENDING MOMENT .1R		LOWER ROTOR PITCH LINK LOAD	
HARMONIC	COS	SIN	COS	SIN
0	-5583.6		-69.9	
1	2242.0	61.9	-119.0	166.7
2	-1359.8	1088.0	75.6	19.4
3	-115.2	18.0	-25.4	30.4
4	-25.8	-42.9	0.8	-5.7
5	67.5	-2.2	-47.6	15.2
6	-25.8	-95.6	59.5	14.8
7	1156.1	-137.0	-24.2	-27.4
8	64.1	-16.4	-16.6	10.9
9	-9.2	-47.0	-9.3	-6.6
10	-4.4	6.0	-1.3	-6.7

RUN 25 POINT 9
VKTS = 104.3 OMEG*R = 597.7 ALFS,C = 8.6 CLR/S,R =0.13770 CMY/S,R = 0.2565
V/CR = 0.295 RHO100 = 0.2265 CP/S = 0.001653 CDR/S,R =0.02220 CMX/S,R =-0.0028

PSI	UPPER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	UR EDGEWISE BENDING .1R	UR PITCH LINK LOAD	UPPER ROTOR SHAFT STRESS
0.00	6389.	6134.	3117.	1373.	-3494.	-615.	1091.
11.25	8560.	7297.	3638.	1639.	-4939.	-355.	249.
22.50	10118.	8454.	4369.	2031.	-5342.	-392.	1005.
33.75	10864.	9371.	5178.	2989.	-4212.	-572.	2490.
45.00	11525.	9945.	5617.	3761.	-3273.	-362.	3164.
56.25	12396.	10371.	5765.	3887.	-3646.	181.	2852.
67.50	13314.	10910.	6056.	3590.	-4325.	393.	2802.
78.75	14302.	11655.	6559.	2865.	-4067.	61.	3535.
90.00	15255.	12390.	6946.	2112.	-3255.	-278.	3784.
101.25	15580.	12628.	6875.	2183.	-3308.	-230.	3031.
112.50	14526.	11960.	6324.	2964.	-4684.	-3.	2893.
123.75	12285.	10590.	5674.	3460.	-6024.	87.	4053.
135.00	10589.	9420.	5232.	2894.	-6149.	-65.	4695.
146.25	10485.	9011.	4802.	1225.	-6156.	-355.	3504.
157.50	10172.	8598.	4066.	-503.	-7634.	-457.	1612.
168.75	7719.	7148.	3001.	-1177.	-9705.	-194.	998.
180.00	4067.	4938.	1745.	-1195.	-10277.	52.	2154.
191.25	789.	2824.	470.	-1336.	-9371.	-78.	3309.
202.50	-1984.	953.	-641.	-1441.	-8902.	-267.	2720.
213.75	-3965.	-591.	-1514.	-1709.	-9566.	-193.	1523.
225.00	-4729.	-1375.	-2125.	-2586.	-9738.	-203.	1700.
236.25	-5147.	-1623.	-2431.	-3194.	-8058.	-591.	2480.
247.50	-5828.	-1938.	-2521.	-2839.	-5858.	-914.	2268.
258.75	-6042.	-2140.	-2510.	-2271.	-5238.	-740.	1658.
270.00	-5672.	-1872.	-2342.	-1611.	-5577.	-396.	1587.
281.25	-5370.	-1462.	-1991.	-271.	-4706.	-427.	1617.
292.50	-4820.	-1066.	-1539.	993.	-2854.	-768.	1383.
303.75	-3314.	-274.	-948.	1236.	-2240.	-905.	1037.
315.00	-1085.	991.	-176.	919.	-3315.	-667.	761.
326.25	1165.	2379.	678.	581.	-4217.	-451.	1123.
337.50	2988.	3716.	1577.	391.	-3743.	-569.	2094.
348.75	4519.	4974.	2459.	747.	-2967.	-750.	2255.

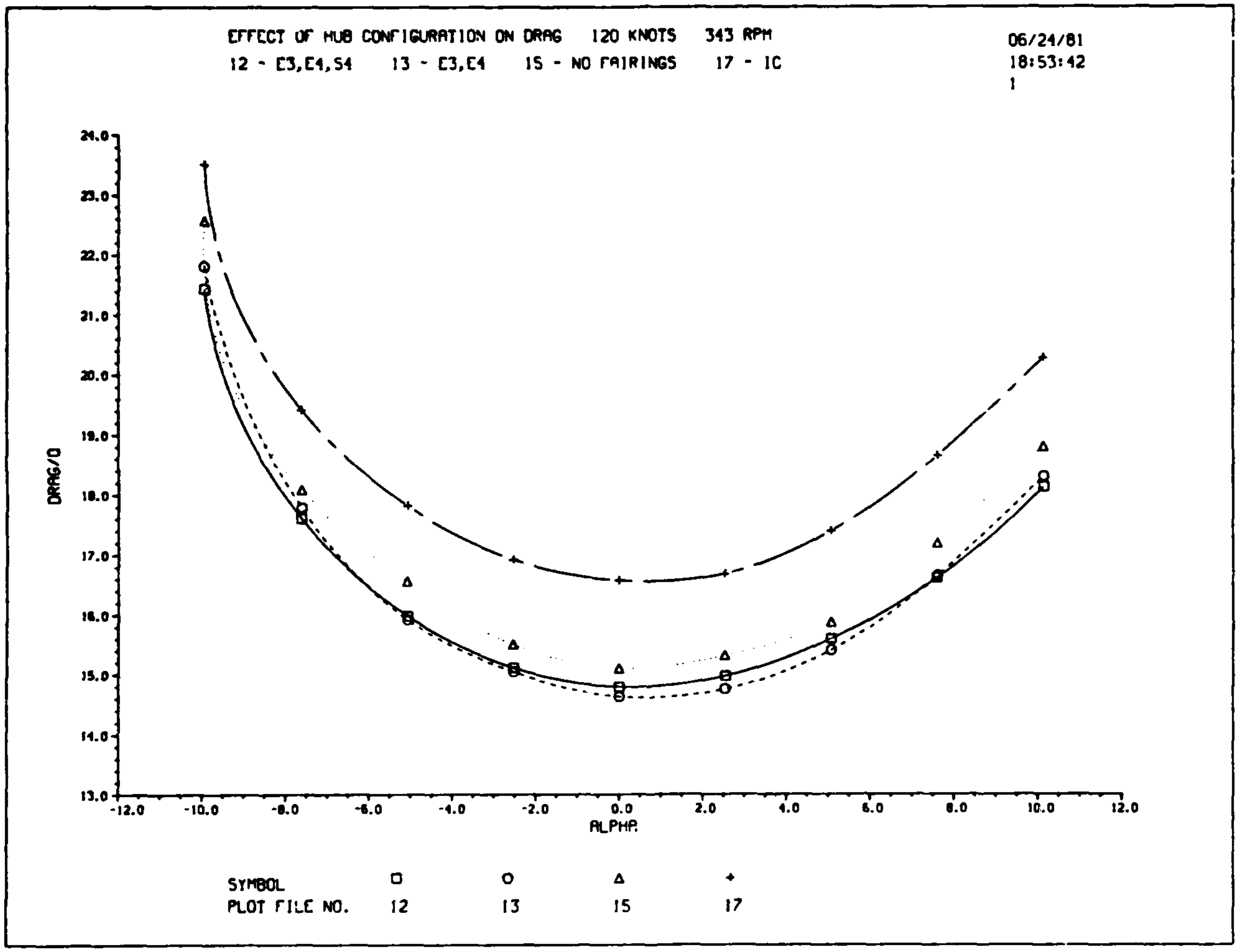
RUN 25 POINT 9

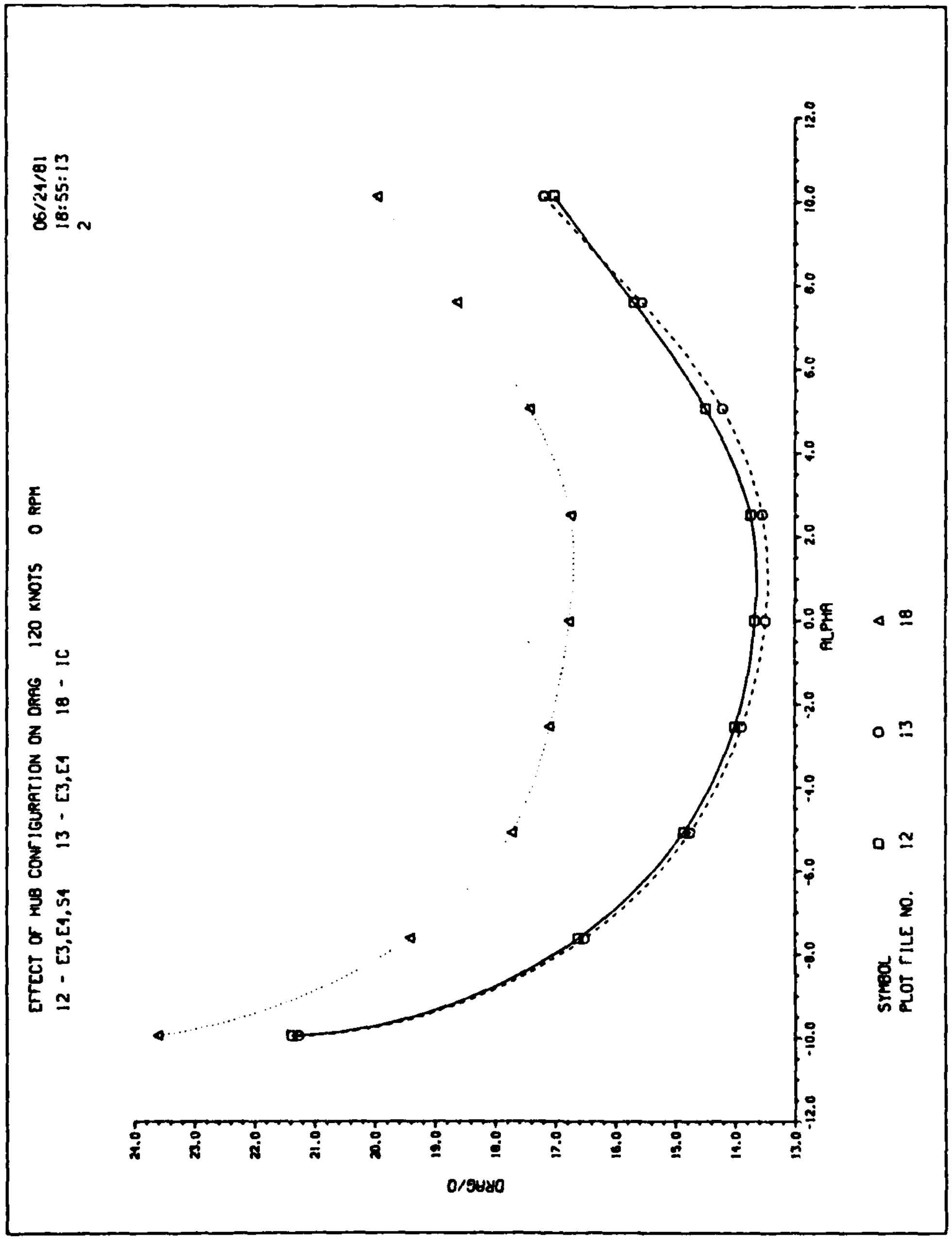
VKTS = 104.3	OMEG*R = 597.7	ALFS,C = 8.6	CLR/S,R =0.13770	CMY/S,R = 0.2565
V/OR = 0.295	RHO100 = 0.2265	CP/S = 0.001653	CDR/S,R =0.02220	CMX/S,R =-0.0028

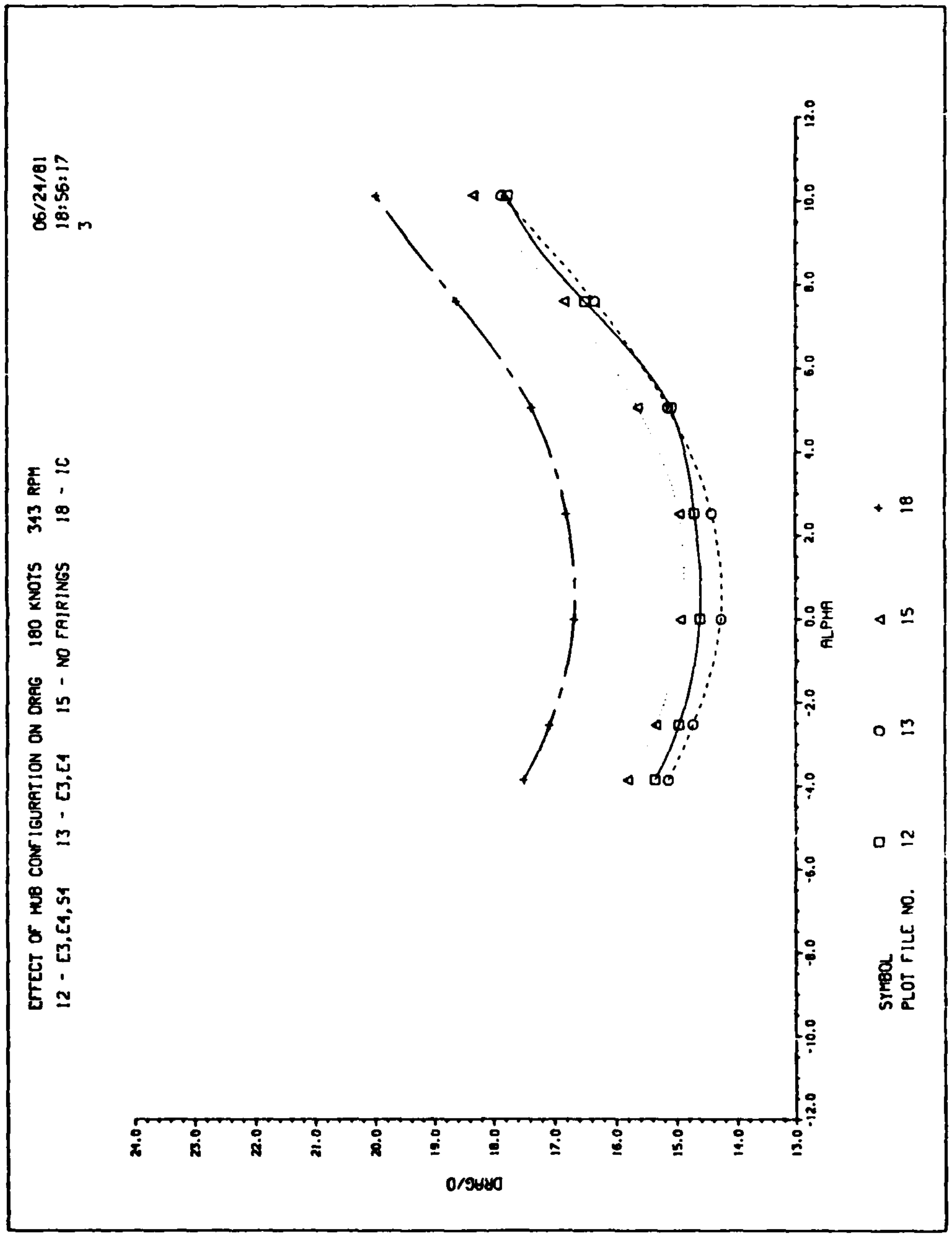
PSI	LOWER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	LR EDGEWISE BENDING .1R	LR PITCH LINK LOAD
300.00	10867.	7591.	5066.	90.	-3986.	-245.
288.75	10546.	7609.	5084.	147.	-5196.	-297.
277.50	11259.	7809.	5470.	138.	-5153.	-382.
266.25	13636.	8923.	6027.	-32.	-3849.	-370.
255.00	14378.	9856.	6202.	-67.	-3600.	-210.
243.75	12025.	9167.	5852.	175.	-5157.	-61.
232.50	9847.	7641.	5252.	358.	-6673.	-92.
221.25	9837.	6955.	4771.	244.	-6734.	-209.
210.00	9910.	6986.	4524.	1.	-6390.	-177.
198.75	8287.	6423.	4099.	-176.	-7408.	36.
187.50	5429.	4778.	3029.	-250.	-9454.	235.
176.25	2099.	2548.	1553.	-247.	-10315.	261.
165.00	-976.	416.	290.	-256.	-9150.	160.
153.75	-3017.	-1184.	-616.	-363.	-7927.	92.
142.50	-4321.	-2334.	-1421.	-520.	-8368.	103.
131.25	-5783.	-3418.	-2213.	-636.	-9088.	113.
120.00	-7326.	-4462.	-2854.	-687.	-7827.	92.
108.75	-8310.	-5151.	-3224.	-684.	-5212.	56.
97.50	-8688.	-5443.	-3345.	-637.	-3840.	-7.
86.25	-8584.	-5513.	-3295.	-567.	-4249.	-55.
75.00	-7718.	-5219.	-3047.	-505.	-4304.	-12.
63.75	-6203.	-4385.	-2546.	-453.	-2794.	44.
52.50	-4748.	-3337.	-1863.	-363.	-1455.	20.
41.25	-3275.	-2336.	-1062.	-220.	-2276.	-2.
30.00	-1021.	-1026.	-102.	-101.	-4300.	25.
18.75	1490.	685.	942.	-18.	-4965.	-17.
7.50	3102.	2144.	1862.	112.	-3991.	-130.
356.25	4386.	3114.	2554.	244.	-3721.	-187.
345.00	6308.	4114.	3096.	255.	-5255.	-201.
333.75	8089.	5266.	3678.	205.	-6520.	-255.
322.50	9180.	6248.	4386.	181.	-5592.	-297.
311.25	10257.	7059.	4941.	129.	-3927.	-270.

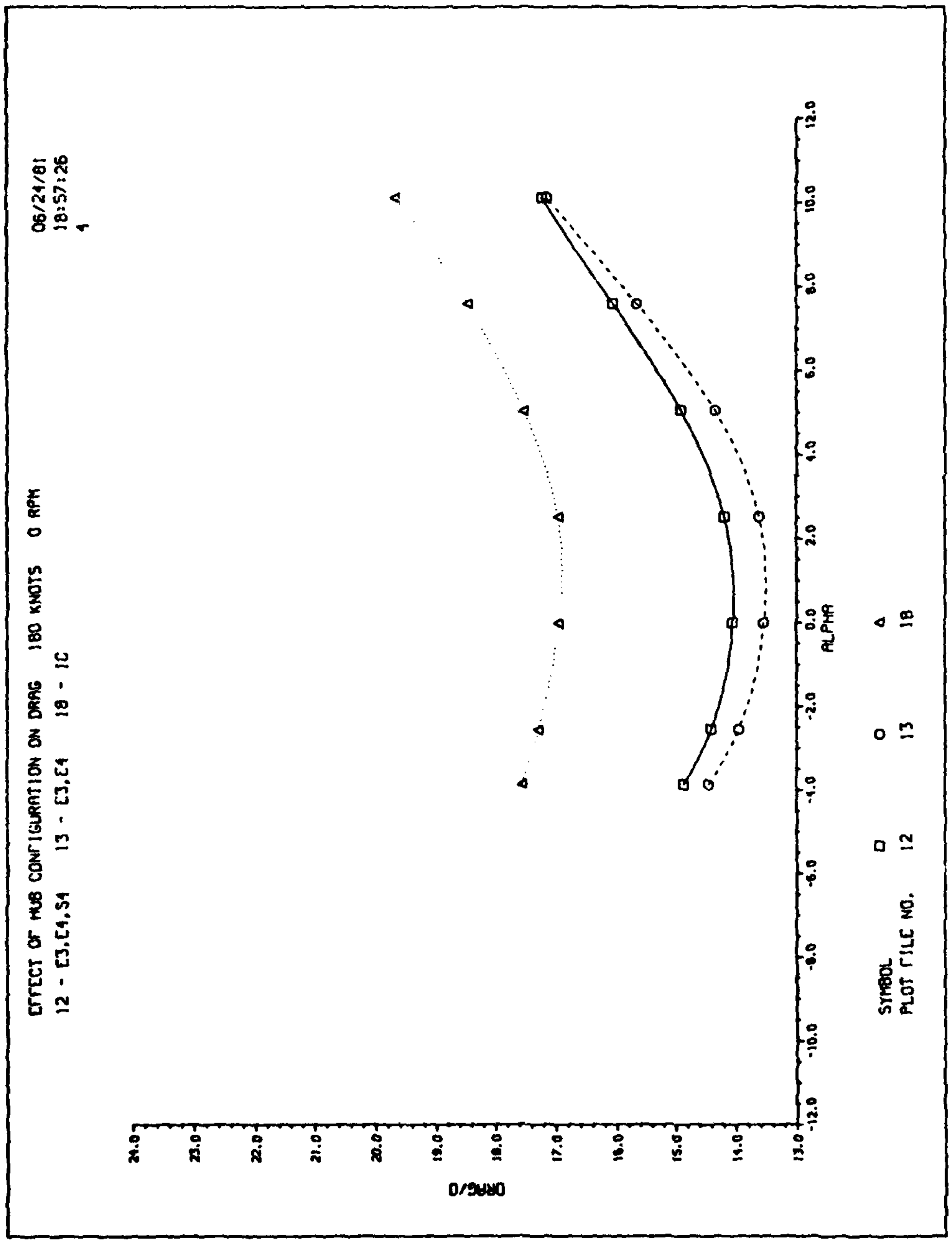
SECTION D

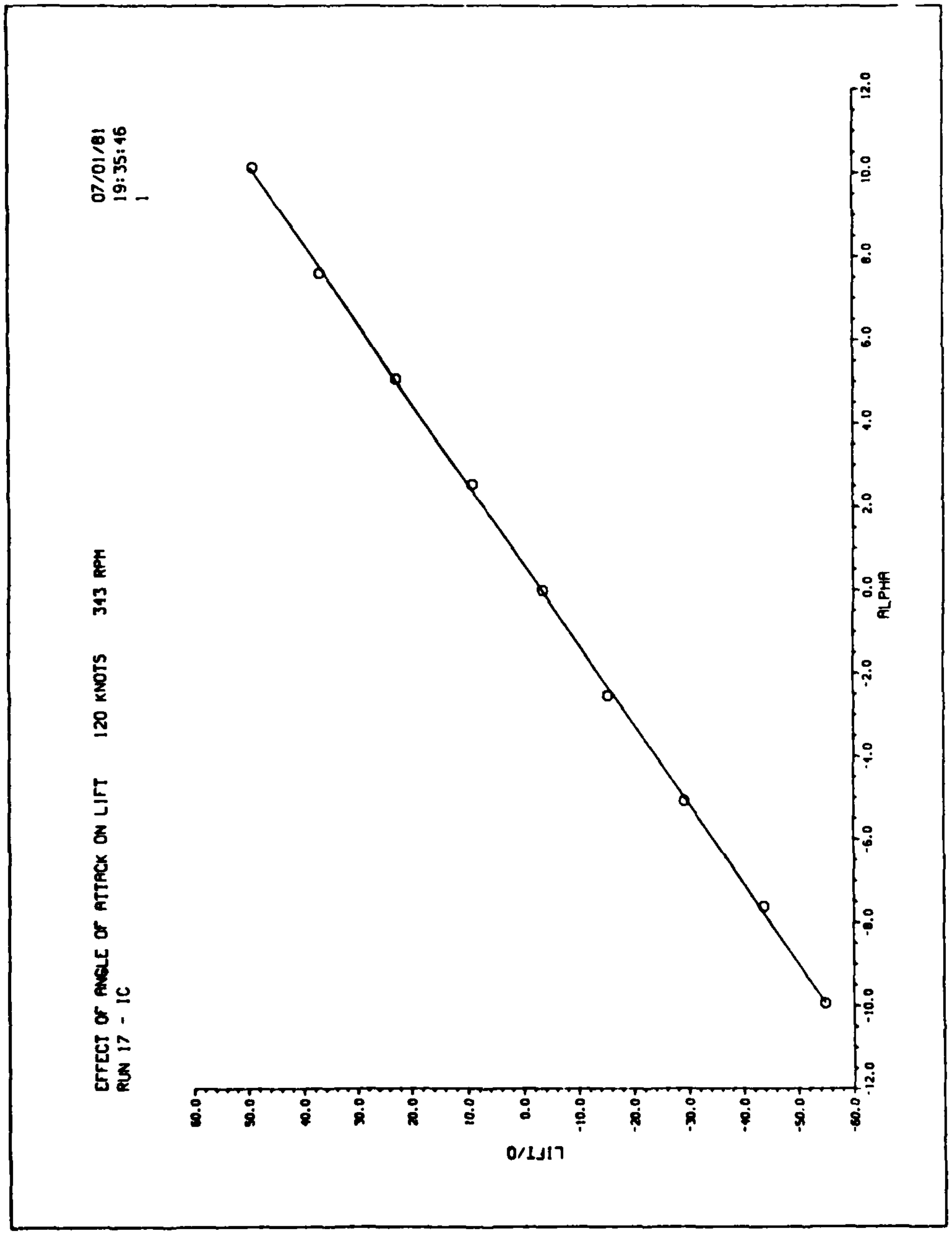
Plotted Performance and Loads Data

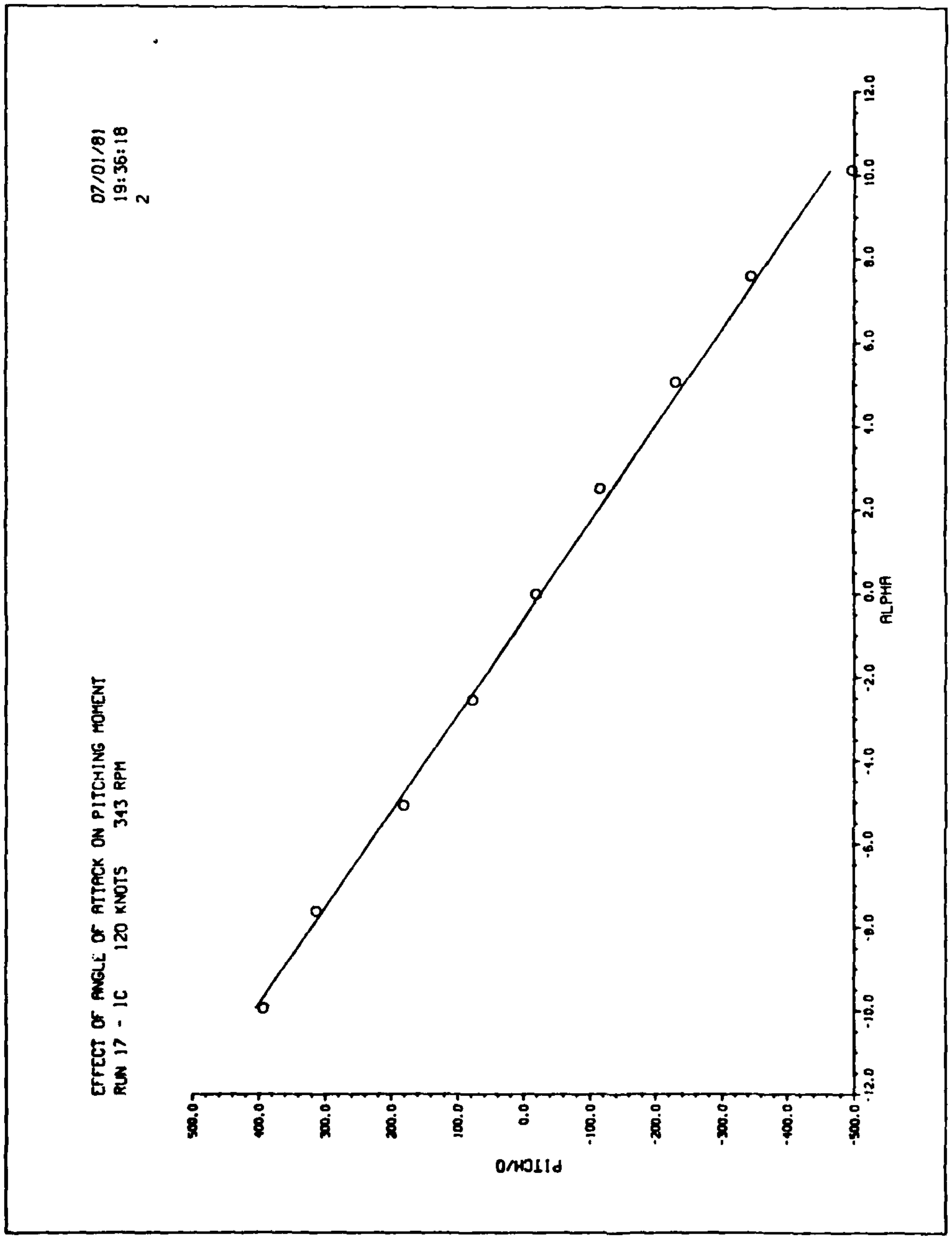

EFFECT OF HUB CONFIGURATION ON DRAG 120 KNOTS 343 RPM
12 - E3,E4,S4 13 - E3,E4 15 - NO FAIRINGS 17 - IC
06/24/81
18:53:42
1
DRAG/Q
24.0
23.0
22.0
21.0
20.0
19.0
18.0
17.0
16.0
15.0
14.0
13.0
-12.0
-10.0
-8.0
-6.0
-4.0
-2.0
0.0
2.0
4.0
6.0
8.0
10.0
12.0
ALPHA
SYMBOL □ ○ △ +
PLOT FILE NO. 12 13 15 17

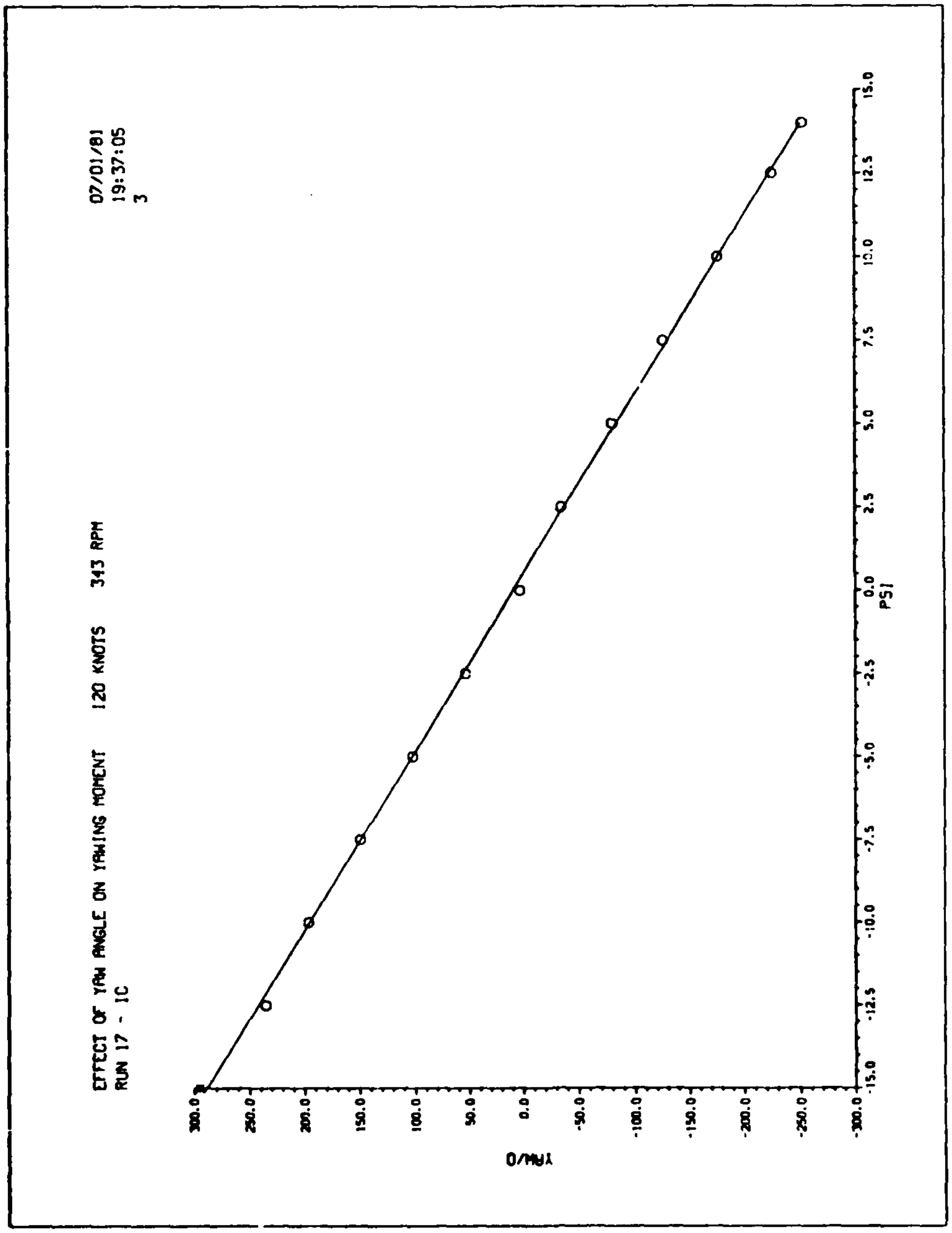

EFFECT OF HUB CONFIGURATION ON DRAG   120 KNOTS   0 RPM
12 - E3,E4,S4   13 - E3,E4   18 - 1C
06/24/81
18:55:13
2
DRAG/Q
ALPHA
SYMBOL
PLOT FILE NO.   12   13   18

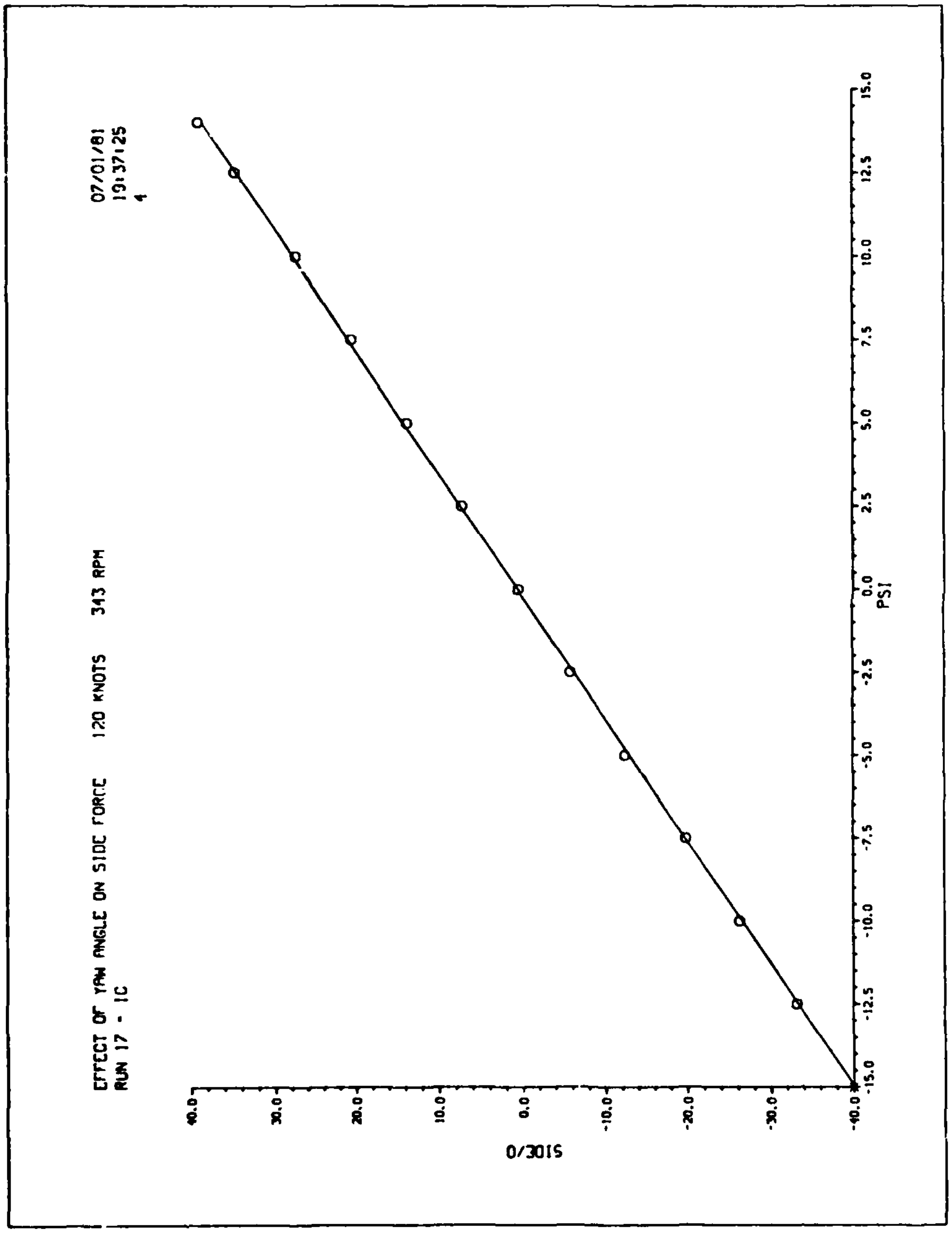

EFFECT OF HUB CONFIGURATION ON DRAG 180 KNOTS 343 RPM
12 - E3,E4,S4 13 - E3,E4 15 - NO FAIRINGS 18 - IC
06/24/81
18:56:17
3
DRAG/Q
ALPHA
SYMBOL
PLOT FILE NO. 12 13 15 18

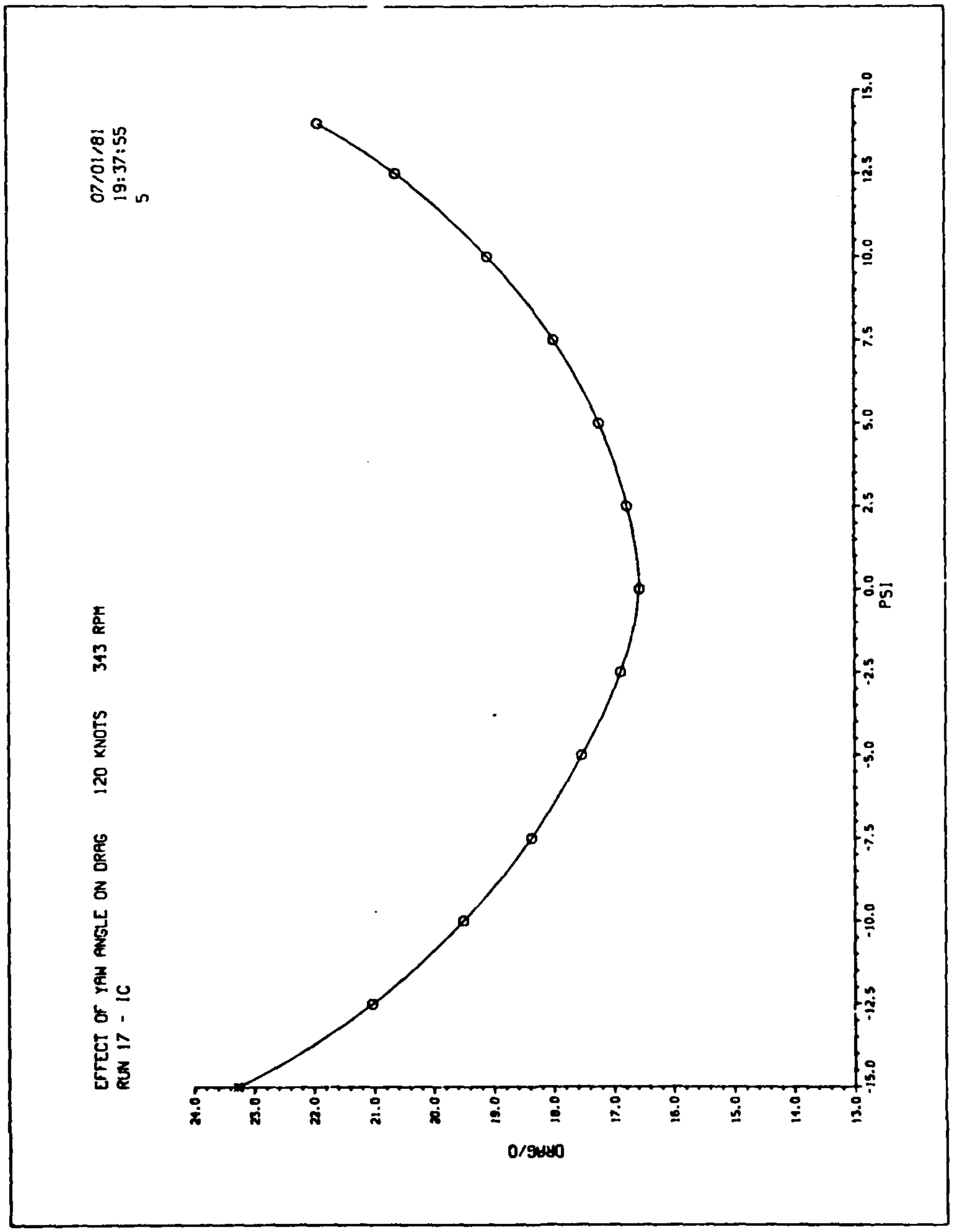

EFFECT OF HUB CONFIGURATION ON DRAG 180 KNOTS 0 RPM
12 - E3,E4,S4 13 - E3,E4 18 - 1C
06/24/81
18:57:26
4
DRAG/Q
ALPHA
SYMBOL
PLOT FILE NO. 12 13 18

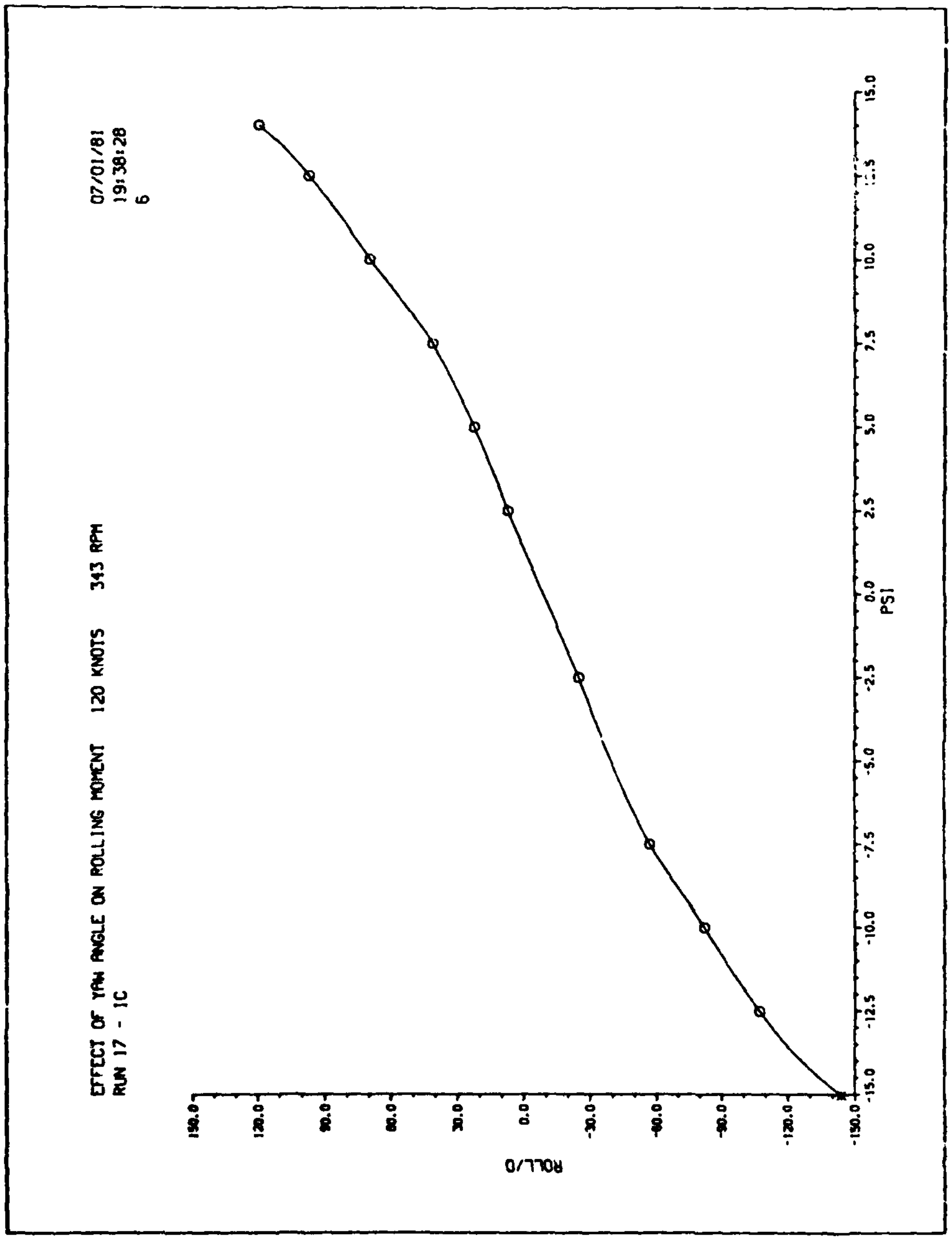

EFFECT OF ANGLE OF ATTACK ON LIFT 120 KNOTS 343 RPM
RUN 17 - IC
07/01/81
19:35:46
1
LIFT/D
ALPHA
60.0
50.0
40.0
30.0
20.0
10.0
0.0
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-12.0
-10.0
-8.0
-6.0
-4.0
-2.0
0.0
2.0
4.0
6.0
8.0
10.0
12.0

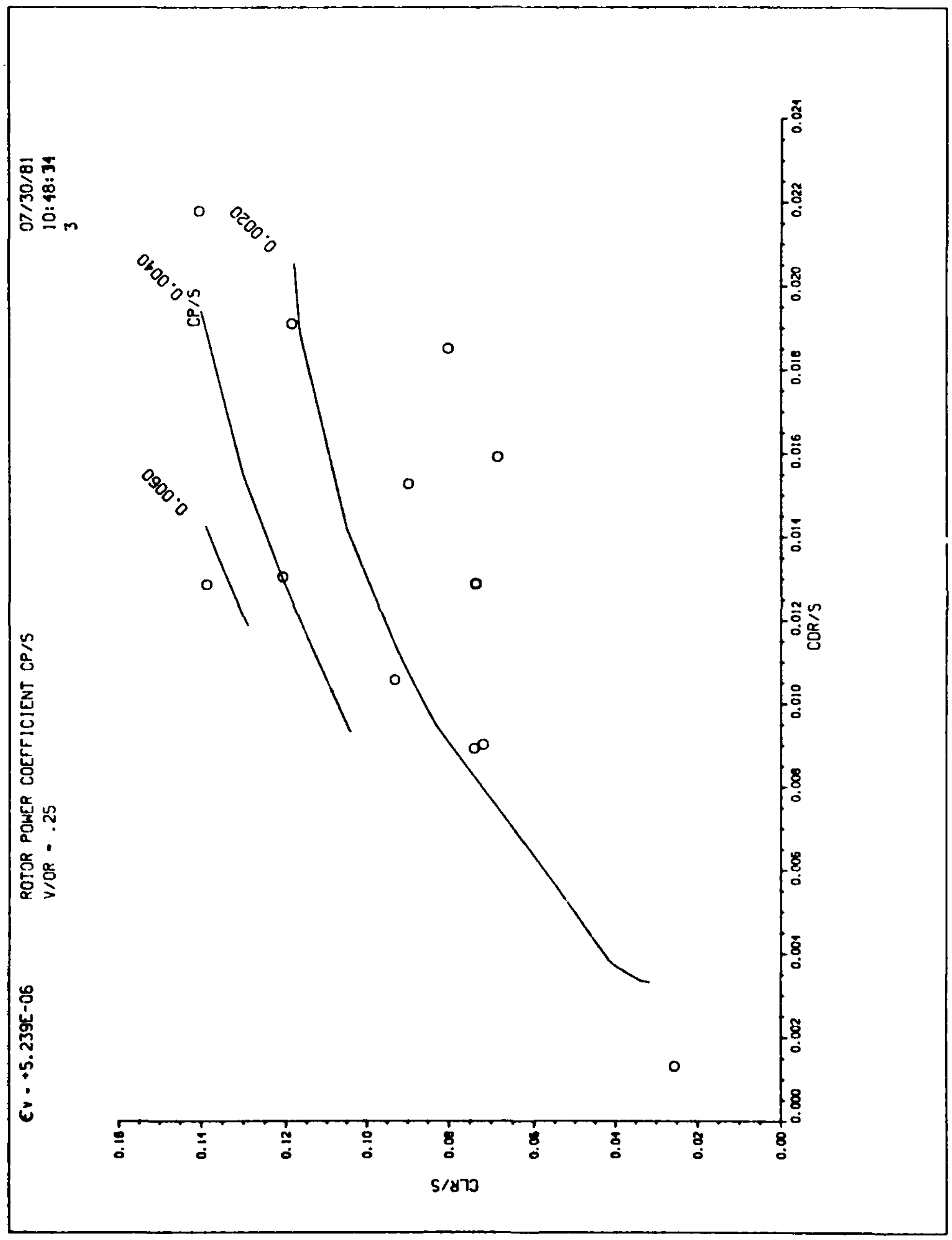

EFFECT OF ANGLE OF ATTACK ON PITCHING MOMENT
RUN 17 - 1C 120 KNOTS 343 RPM
07/01/81
19:36:18
2
ALPHA
PITCH/Q


EFFECT OF YAW ANGLE ON YAWING MOMENT 120 KNOTS 343 RPM
RUN 17 - 1C
07/01/81
19:37:05
3
PSI
YAW/Q

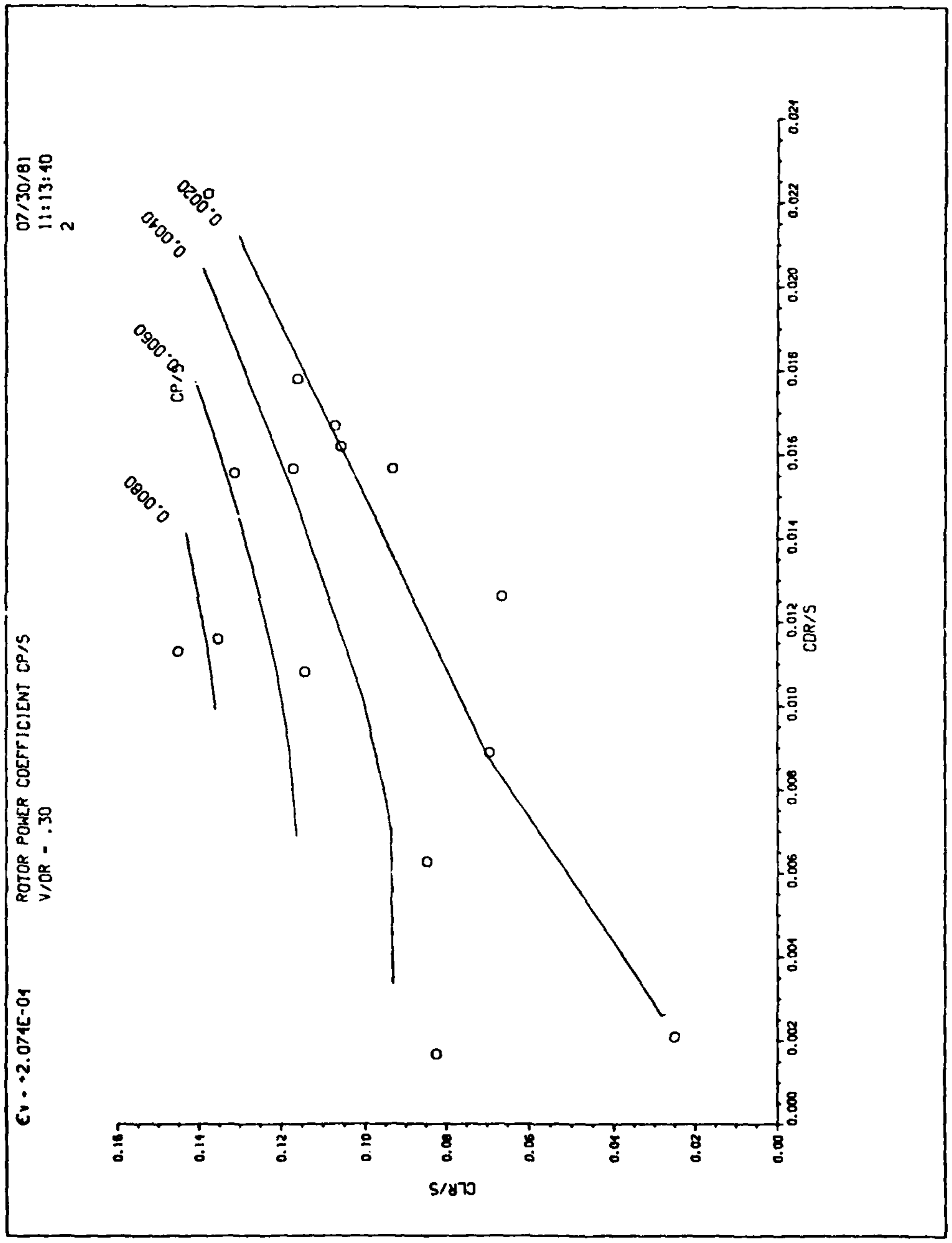

EFFECT OF YAW ANGLE ON SIDE FORCE 120 KNOTS 343 RPM
RUN 17 - 1C
07/01/81
19:37:25
4
SIDE/Q
PSI
40.0
30.0
20.0
10.0
0.0
-10.0
-20.0
-30.0
-40.0
-15.0
-12.5
-10.0
-7.5
-5.0
-2.5
0.0
2.5
5.0
7.5
10.0
12.5
15.0


EFFECT OF YAW ANGLE ON DRAG   120 KNOTS   343 RPM
RUN 17 - IC
07/01/81
19:37:55
5
DRAG/Q
24.0
23.0
22.0
21.0
20.0
19.0
18.0
17.0
16.0
15.0
14.0
13.0
-15.0
-12.5
-10.0
-7.5
-5.0
-2.5
0.0
2.5
5.0
7.5
10.0
12.5
15.0
PSI

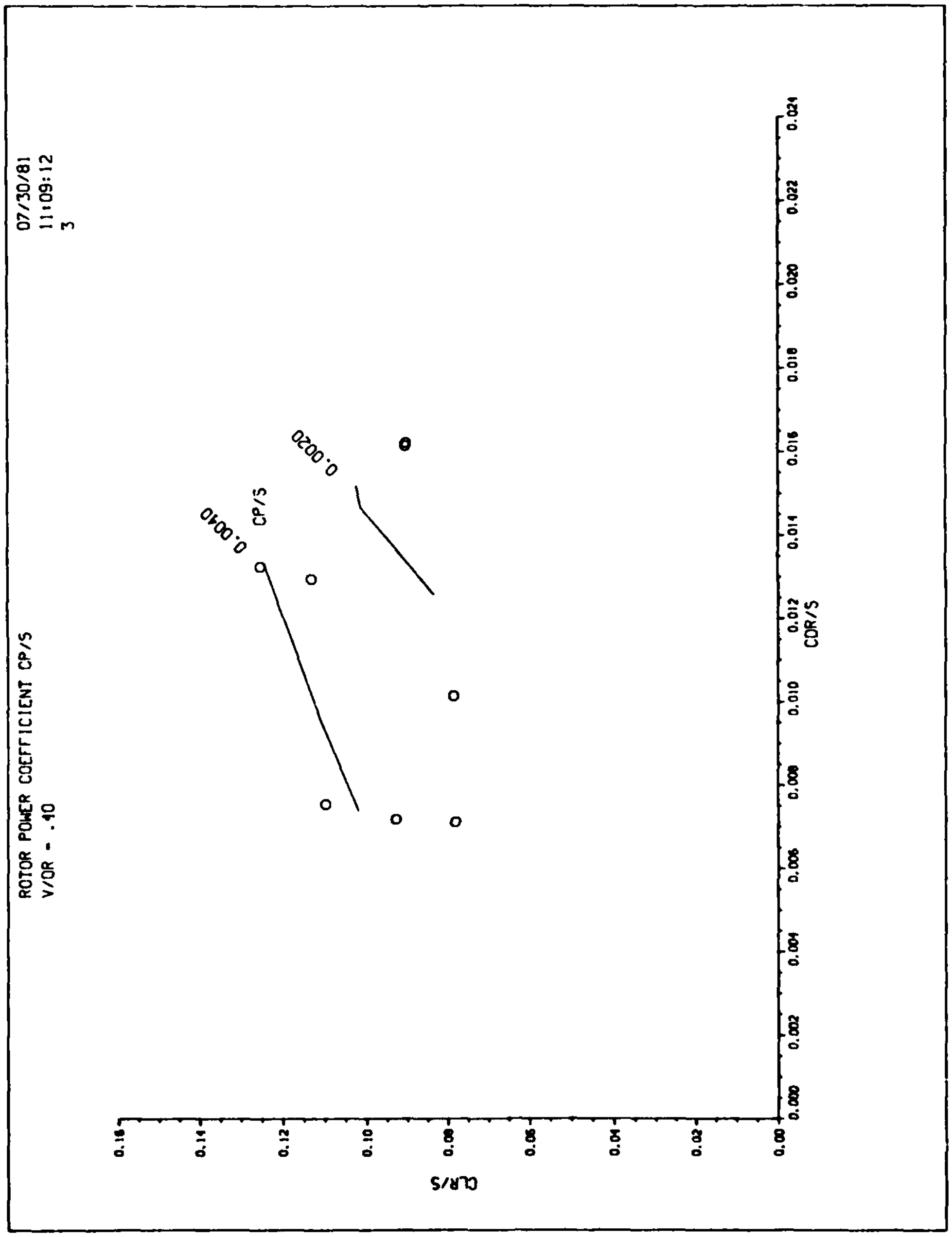

EFFECT OF YAW ANGLE ON ROLLING MOMENT 120 KNOTS 343 RPM
RUN 17 - 1C
07/01/81
19:38:28
6
ROLL/O
150.0
120.0
90.0
60.0
30.0
0.0
-30.0
-60.0
-90.0
-120.0
-150.0
PSI
-15.0
-12.5
-10.0
-7.5
-5.0
-2.5
0.0
2.5
5.0
7.5
10.0
15.0

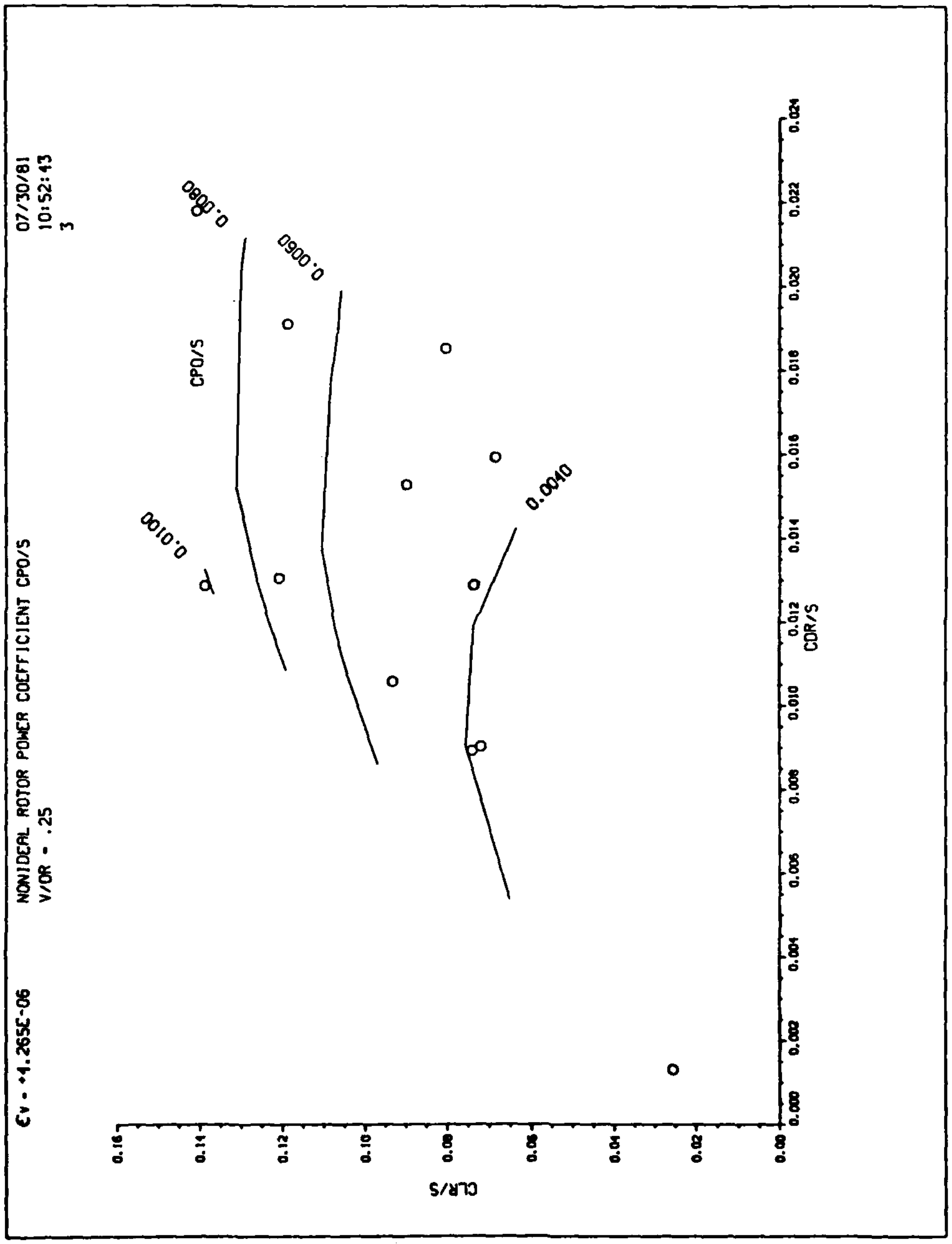


εv = +5.239E-06
ROTOR POWER COEFFICIENT CP/S
V/ΩR = .25
07/30/81
10:48:34
3
CP/S
0.0020
0.0040
0.0060
CDR/S
CLR/S
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16

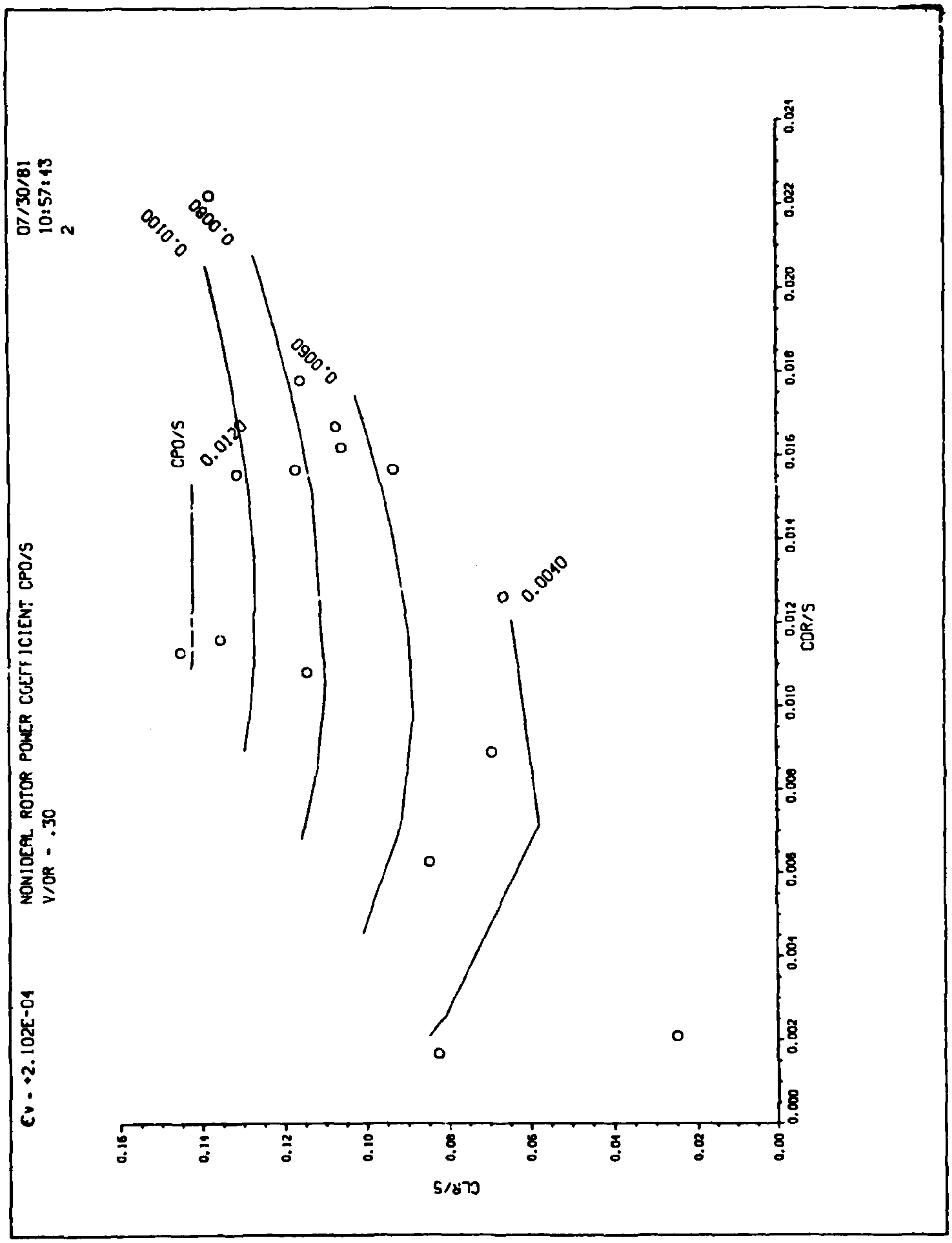


€v - -2.074E-04
ROTOR POWER COEFFICIENT CP/S
V/OR - .30
07/30/81
11:13:40
2
CP/S
0.0020
0.0040
0.0060
0.0080
CLR/S
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
CDR/S
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024

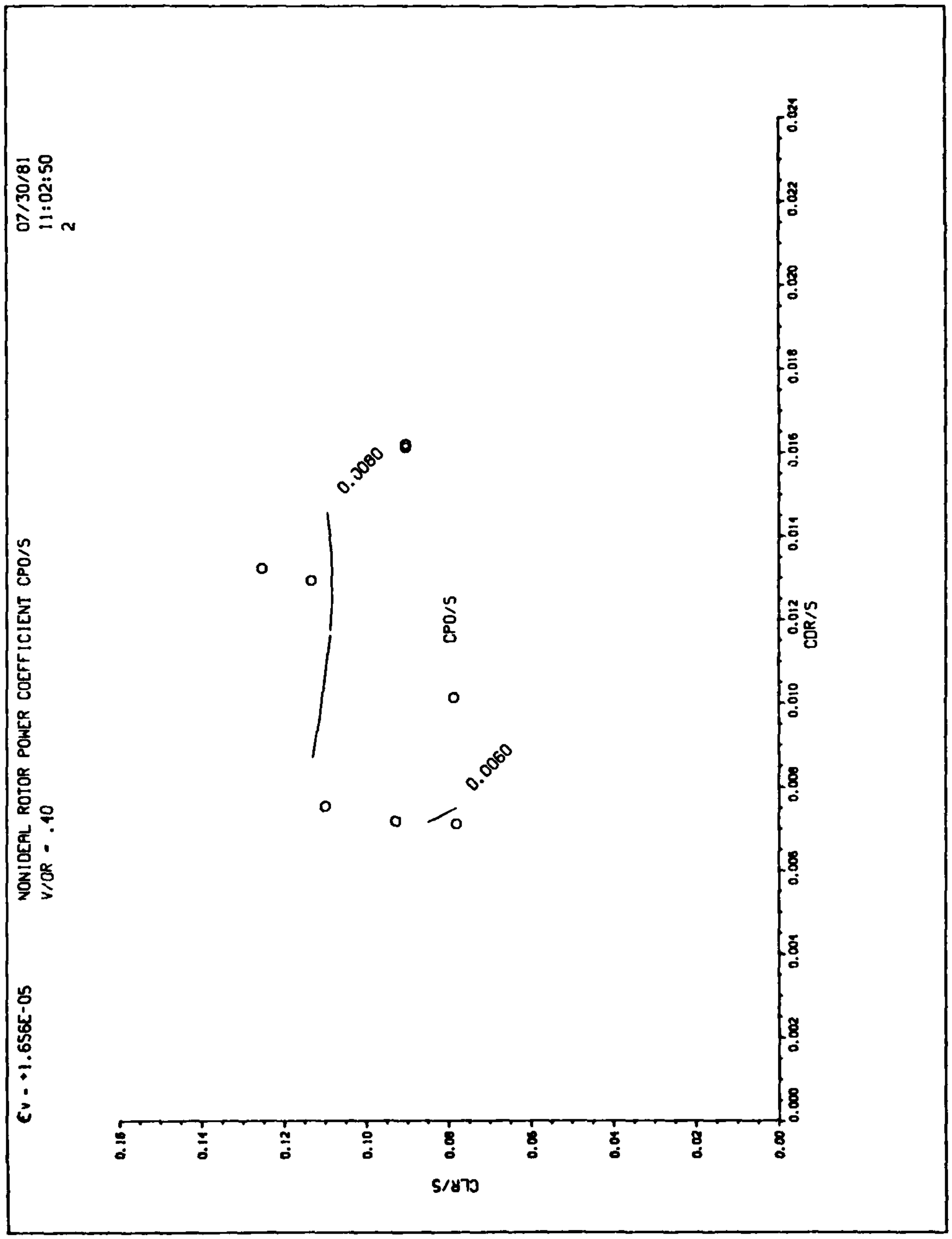

ROTOR POWER COEFFICIENT CP/S
V/OR - .40
07/30/81
11:09:12
3
CP/S
0.0040
0.0020
CDR/S
CLR/S
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16

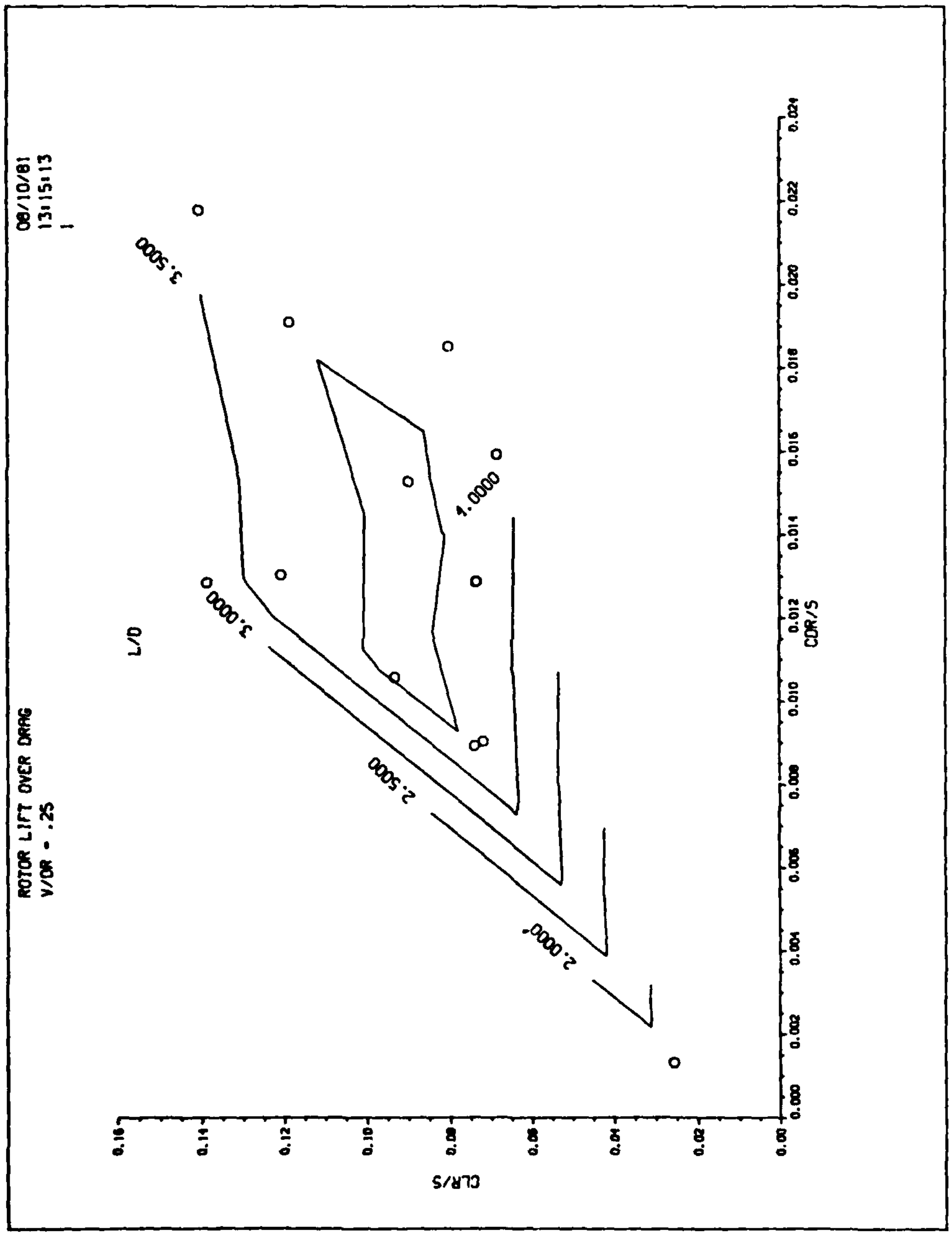


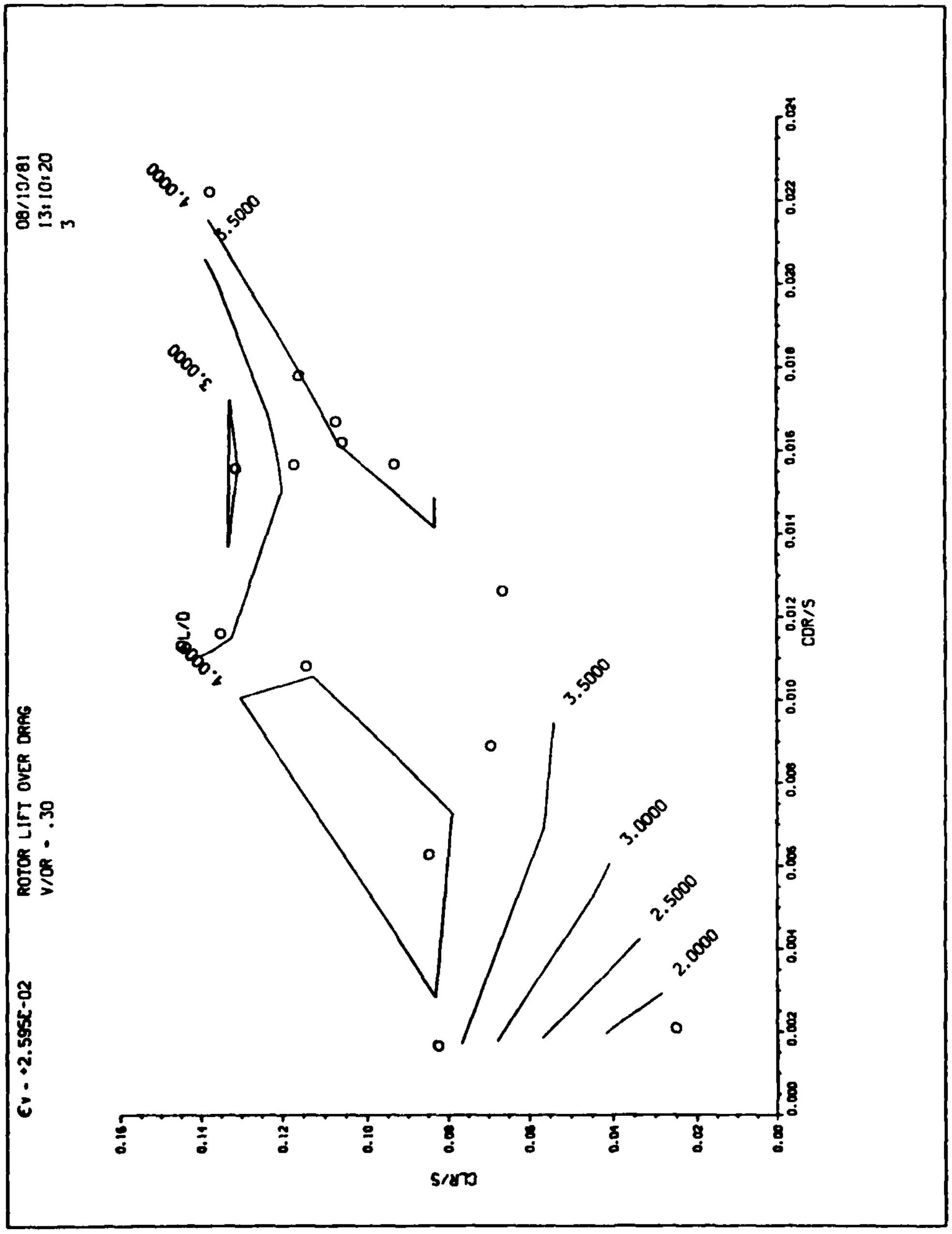
€v - +4.265E-06
NONIDEAL ROTOR POWER COEFFICIENT CPO/S
V/OR = .25
07/30/81
10:52:43
3
CPO/S
0.0100
0.0080
0.0060
0.0040
CLR/S
CDR/S
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024



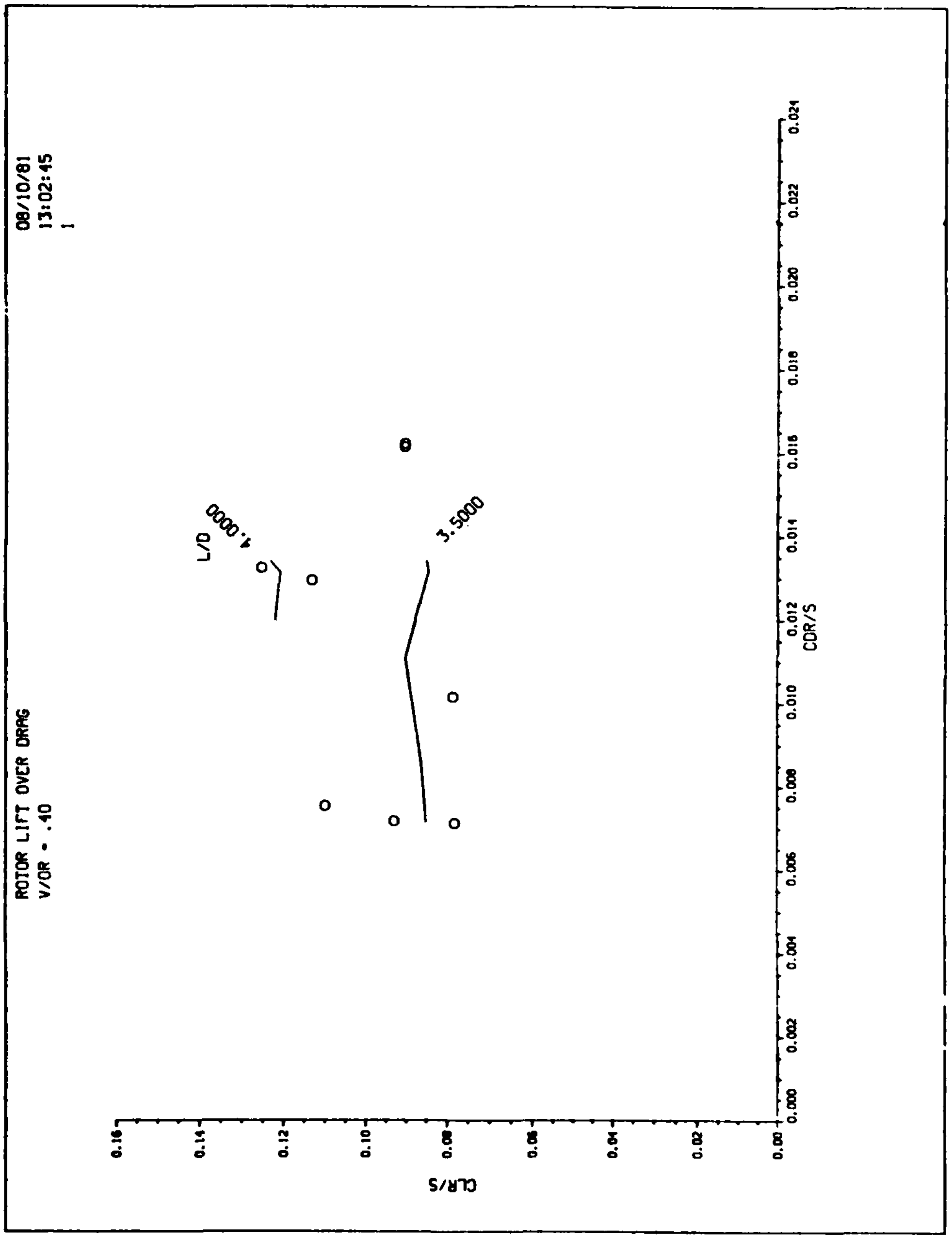
Єv - +2.102E-04
NONIDEAL ROTOR POWER COEFFICIENT CPO/S
V/OR - .30
07/30/81
10:57:43
2
CPO/S
0.0120
0.0100
0.0080
0.0060
0.0040
CDR/S
CLR/S
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16


€v - +1.656E-05
NONIDEAL ROTOR POWER COEFFICIENT CPO/S
V/ΩR = .40
07/30/81
11:02:50
2
CLR/S
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
CDR/S
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024
CPO/S
0.0080
0.0060

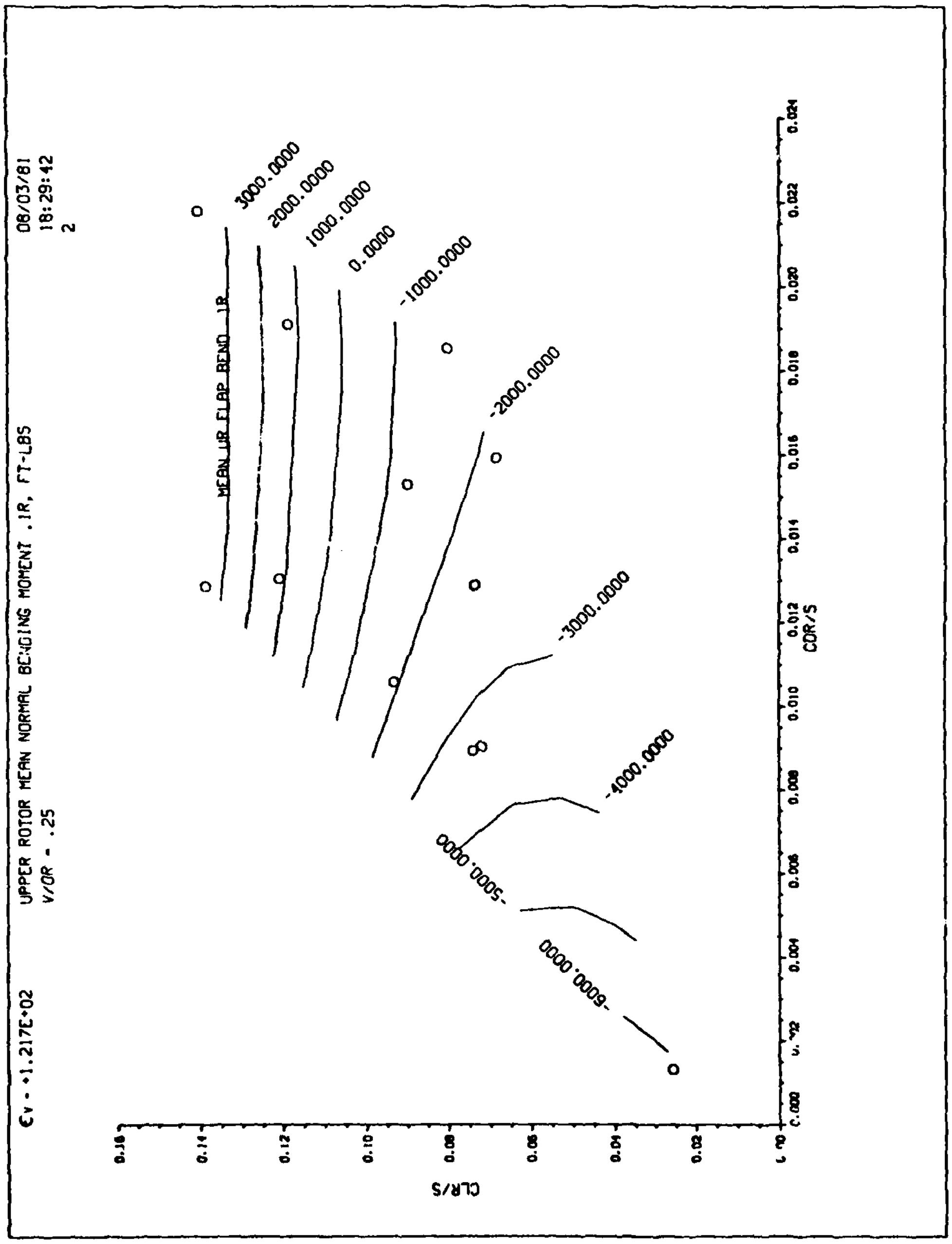

ROTOR LIFT OVER DRAG
V/OR = .25
08/10/81
13:15:13
1
L/D
3.5000
3.0000
2.5000
2.0000
4.0000
CDR/S
CLR/S
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16

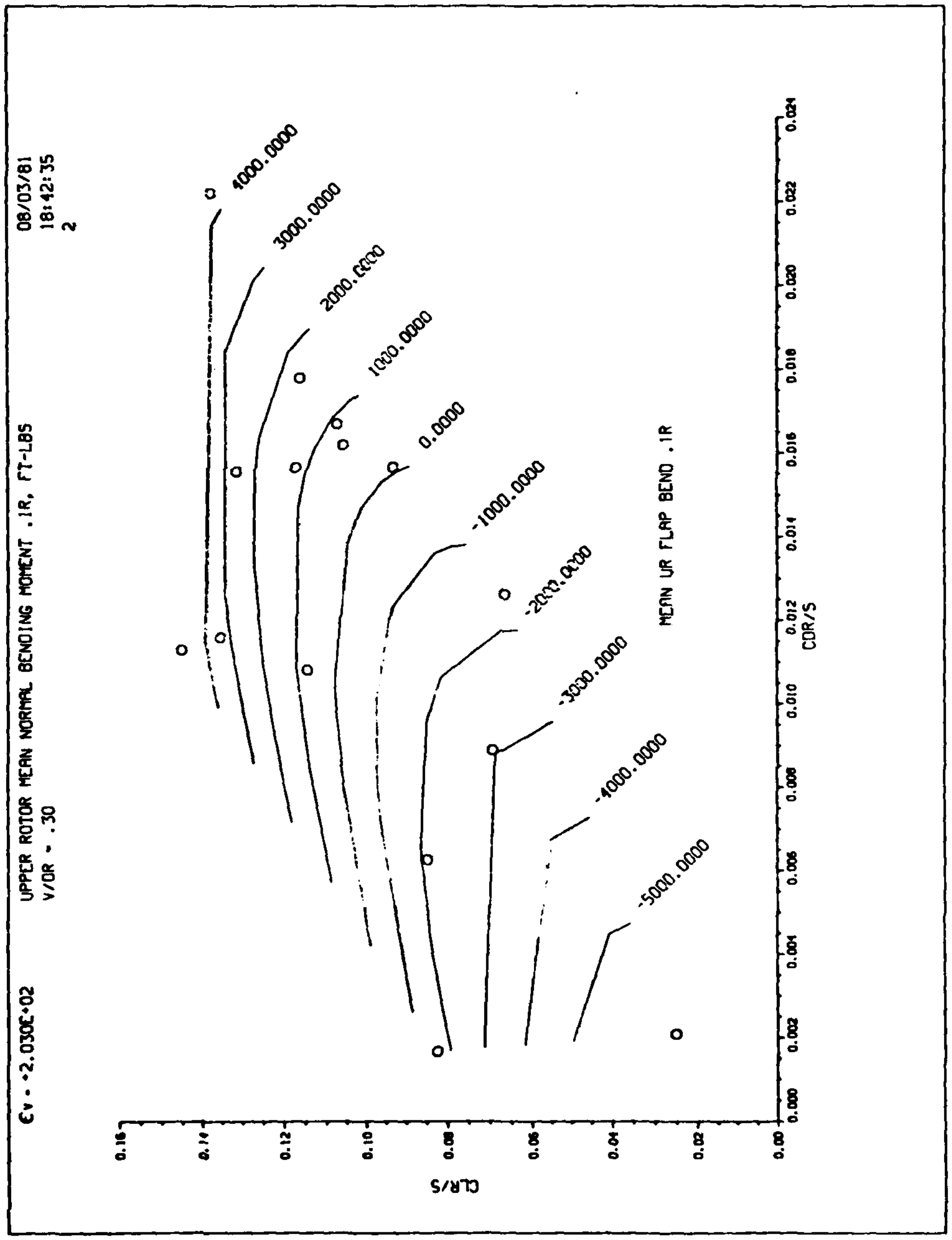


ROTOR LIFT OVER DRAG
V/OR = .30
€v = +2.595E-02
08/10/81
13:10:20
3
CLR/S
CDR/S
L/D
4.0000
3.5000
3.0000
4.0000
3.5000
3.0000
2.5000
2.0000
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024

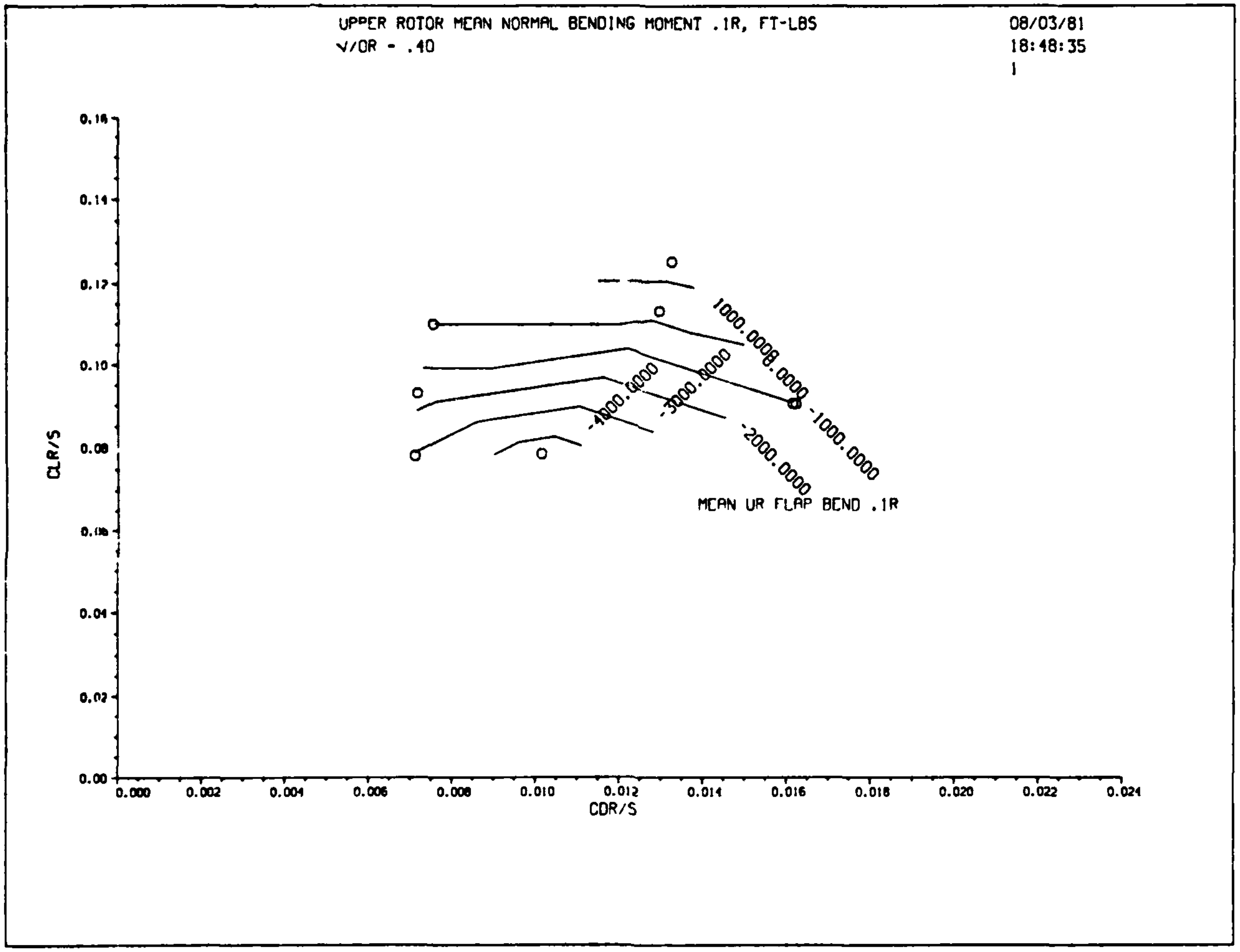


ROTOR LIFT OVER DRAG
V/OR = .40
08/10/81
13:02:45
1
L/D
4.0000
3.5000
CDR/S
CLR/S
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16

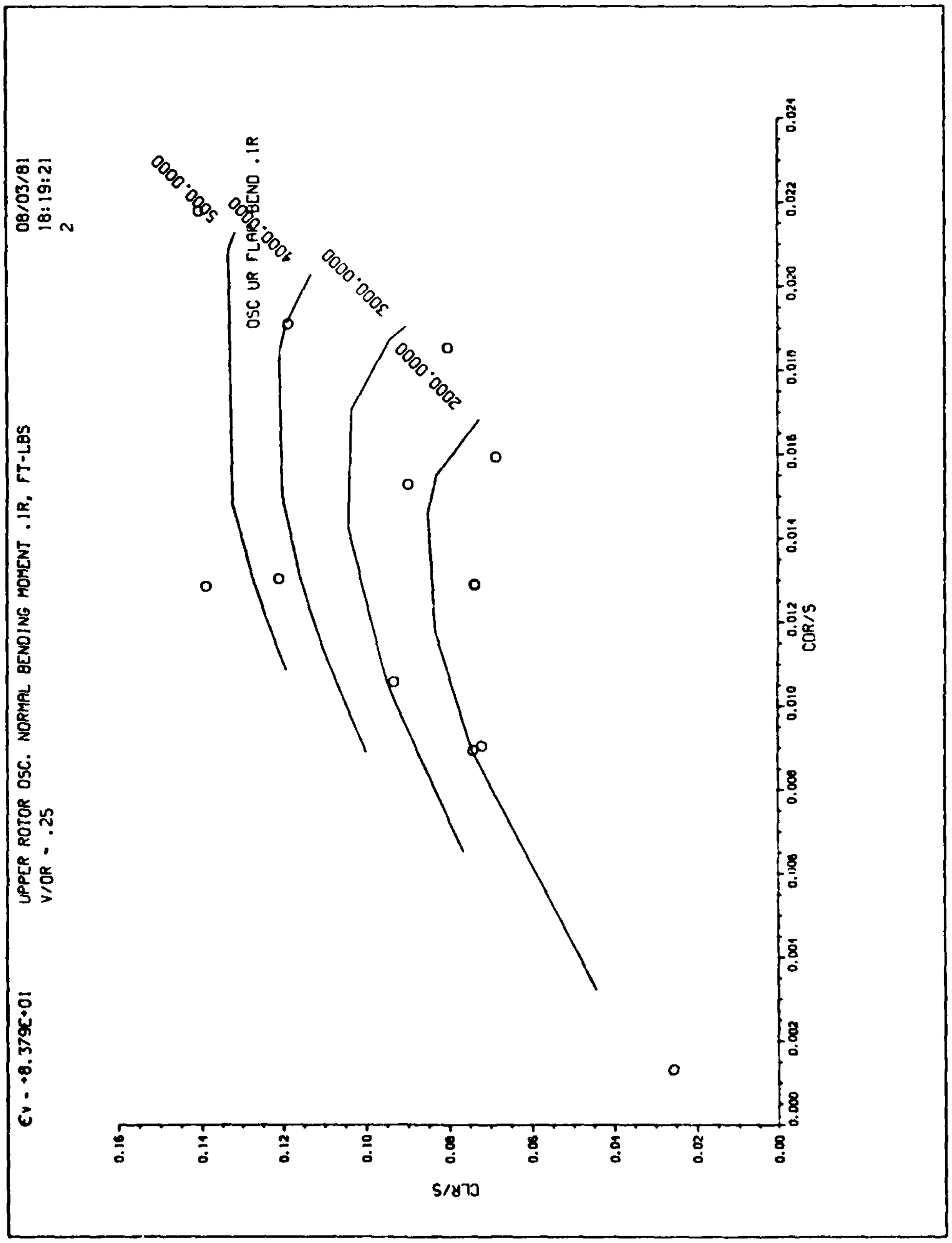

UPPER ROTOR MEAN NORMAL BENDING MOMENT .1R, FT-LBS
V/ΩR = .25
08/03/81
18:29:42
2
MEAN UR FLAP BEND .1R
3000.0000
2000.0000
1000.0000
0.0000
-1000.0000
-2000.0000
-3000.0000
-4000.0000
-5000.0000
-6000.0000
CLR/S
CDR/S



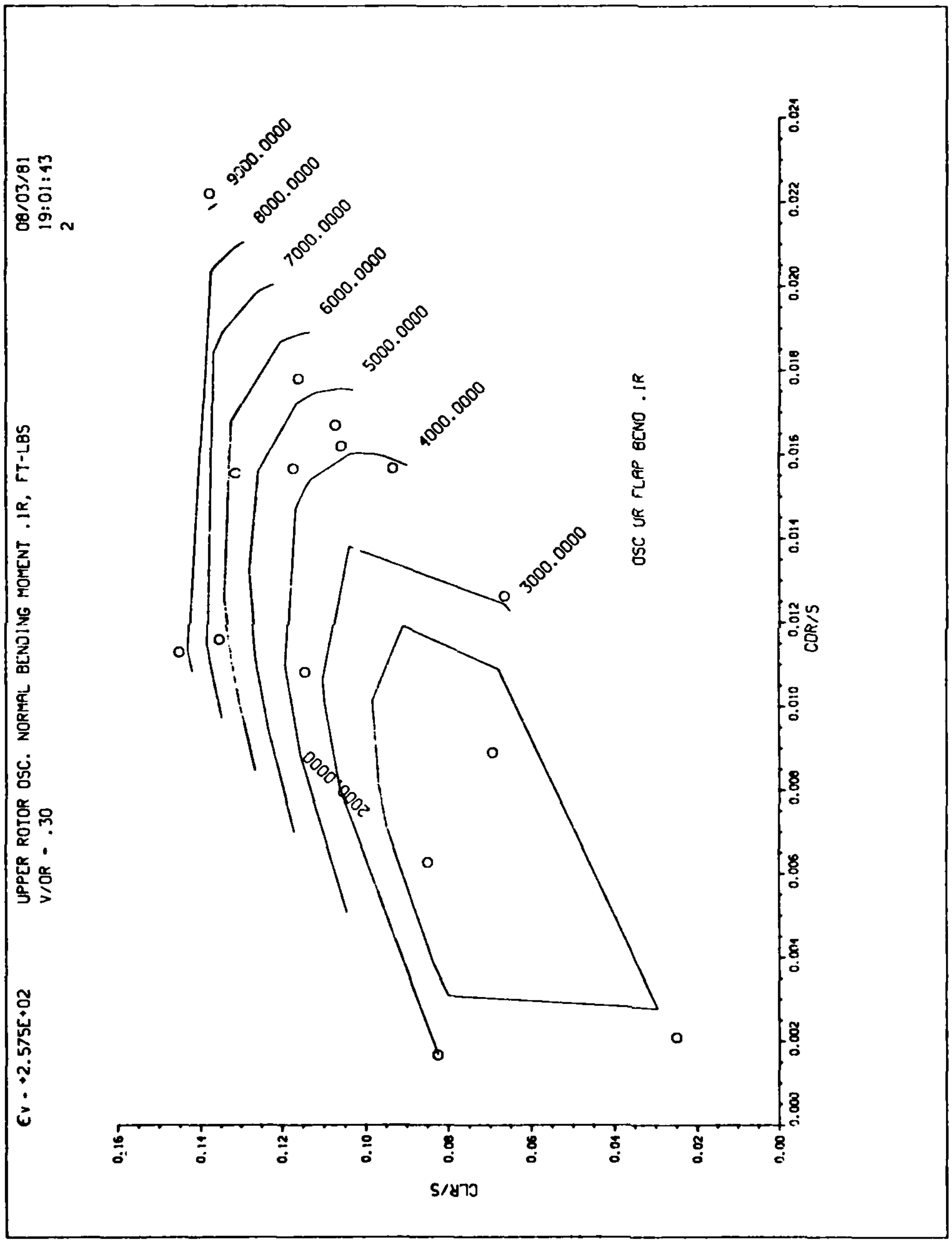
Cv = -2.030E+02
UPPER ROTOR MEAN NORMAL BENDING MOMENT .1R, FT-LBS
V/ΩR = .30
08/03/81
18:42:35
2
4000.0000
3000.0000
2000.0000
1000.0000
0.0000
-1000.0000
-2000.0000
-3000.0000
-4000.0000
-5000.0000
MEAN UR FLAP BEND .1R
CDR/S
CLR/S



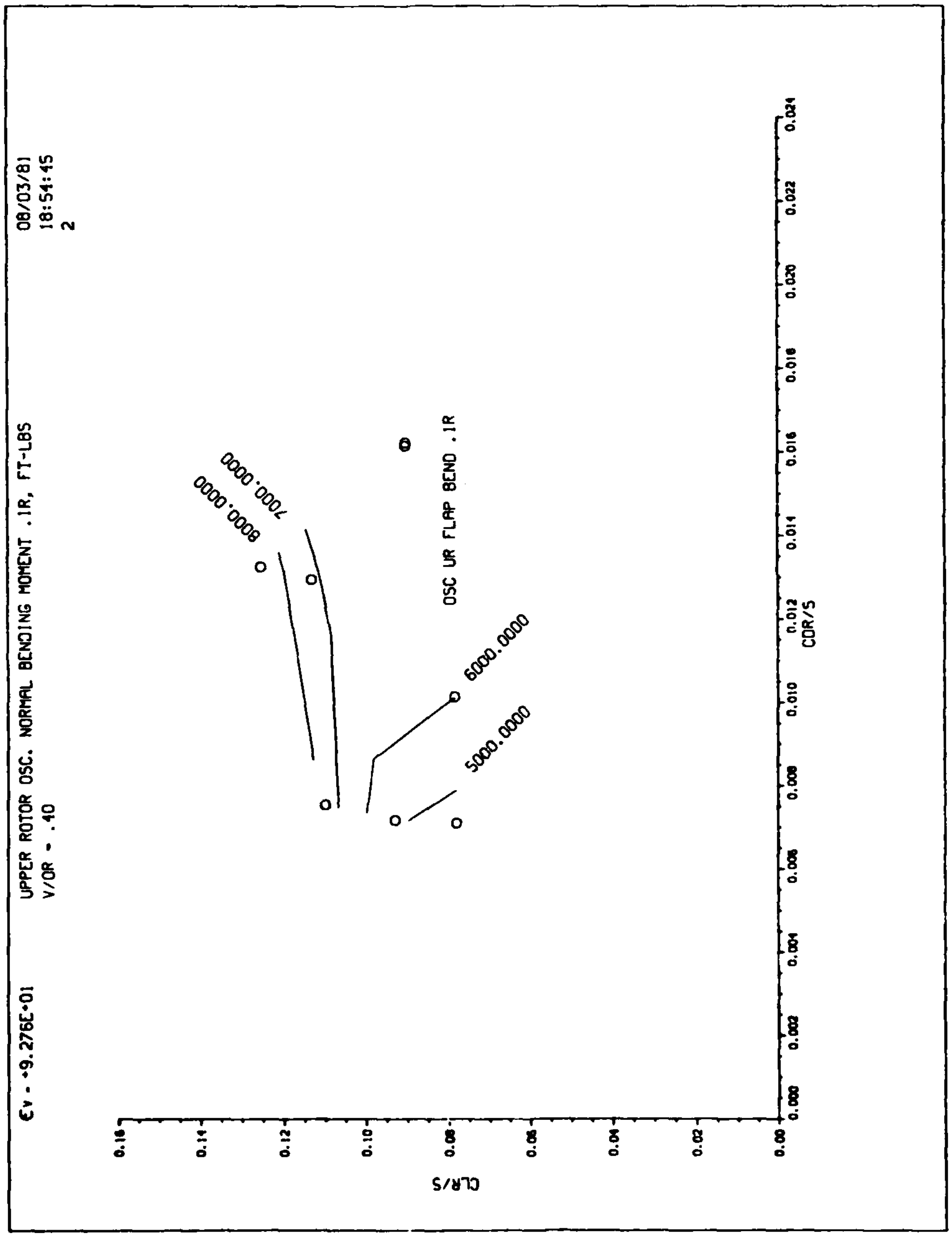
UPPER ROTOR MEAN NORMAL BENDING MOMENT .1R, FT-LBS
V/OR - .40
08/03/81
18:48:35
1
1000.0000
0.0000
-1000.0000
-2000.0000
-3000.0000
-4000.0000
MEAN UR FLAP BEND .1R
CLR/S
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
CDR/S
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024

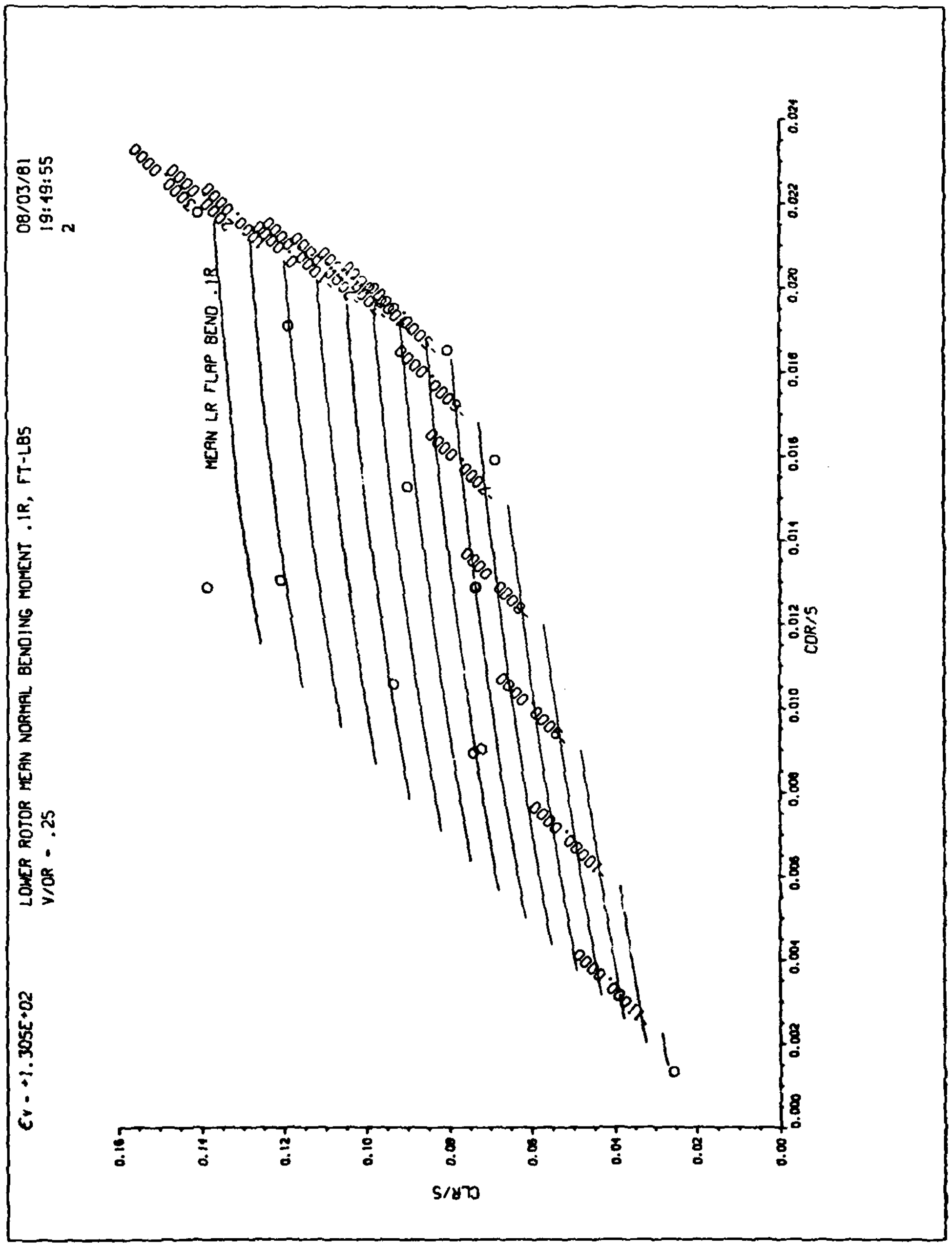


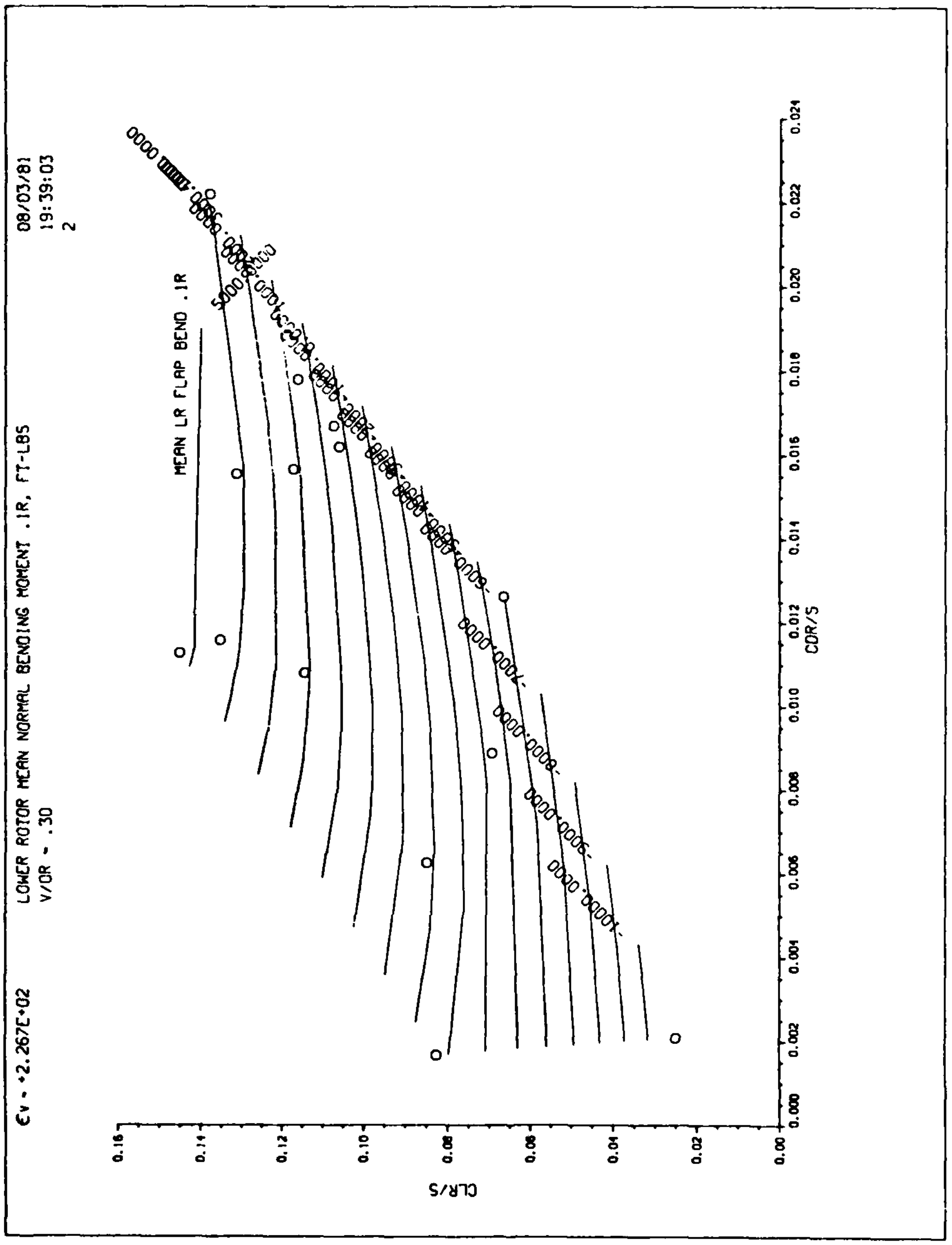
CV = +8.379E+01
UPPER ROTOR OSC. NORMAL BENDING MOMENT .1R, FT-LBS
V/OR = .25
08/03/81
18:19:21
2
OSC UR FLAPBEND .1R
5000.0000
4000.0000
3000.0000
2000.0000
CLR/S
CDR/S
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024

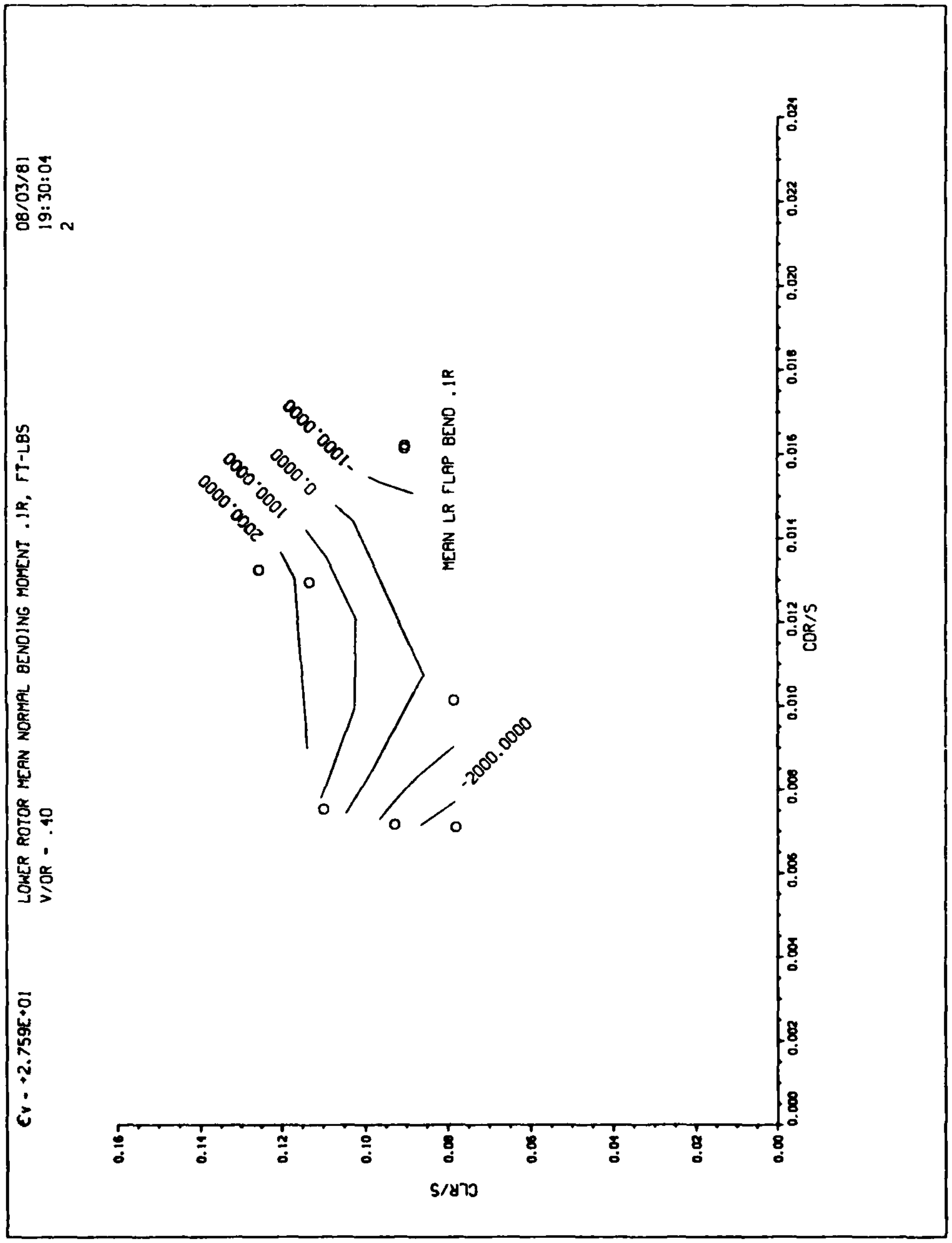


Єv - +2.575E+02
UPPER ROTOR OSC. NORMAL BENDING MOMENT .1R, FT-LBS
V/OR - .30
08/03/81
19:01:43
2
CLR/S
CDR/S
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024
2000.0000
3000.0000
4000.0000
5000.0000
6000.0000
7000.0000
8000.0000
9000.0000
OSC UR FLAP BEND .1R

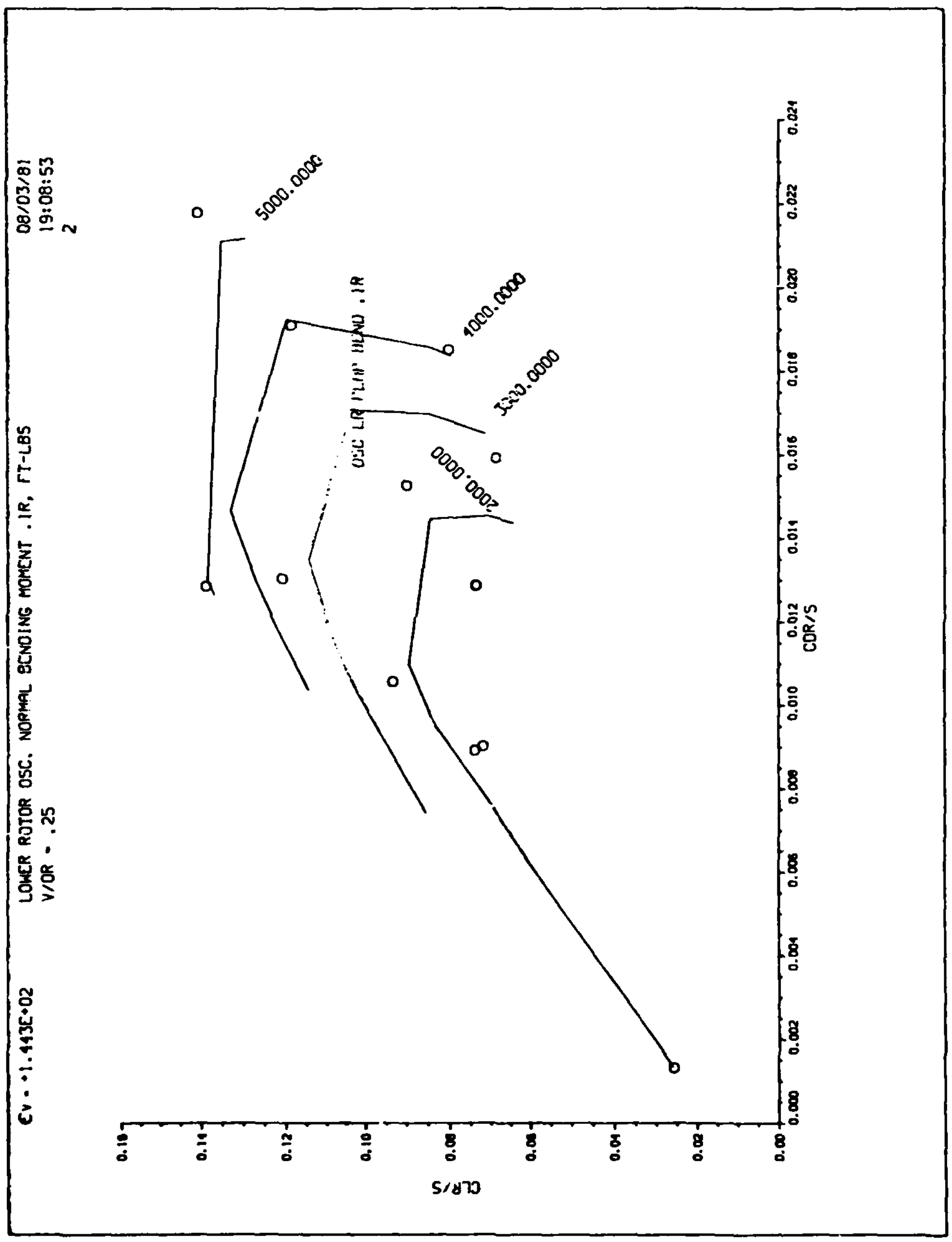

€v = -9.276E+01
UPPER ROTOR OSC. NORMAL BENDING MOMENT .1R, FT-LBS
V/OR = .40
08/03/81
18:54:45
2
8000.0000
7000.0000
6000.0000
5000.0000
OSC UR FLAP BEND .1R
CLR/S
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
CDR/S
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024

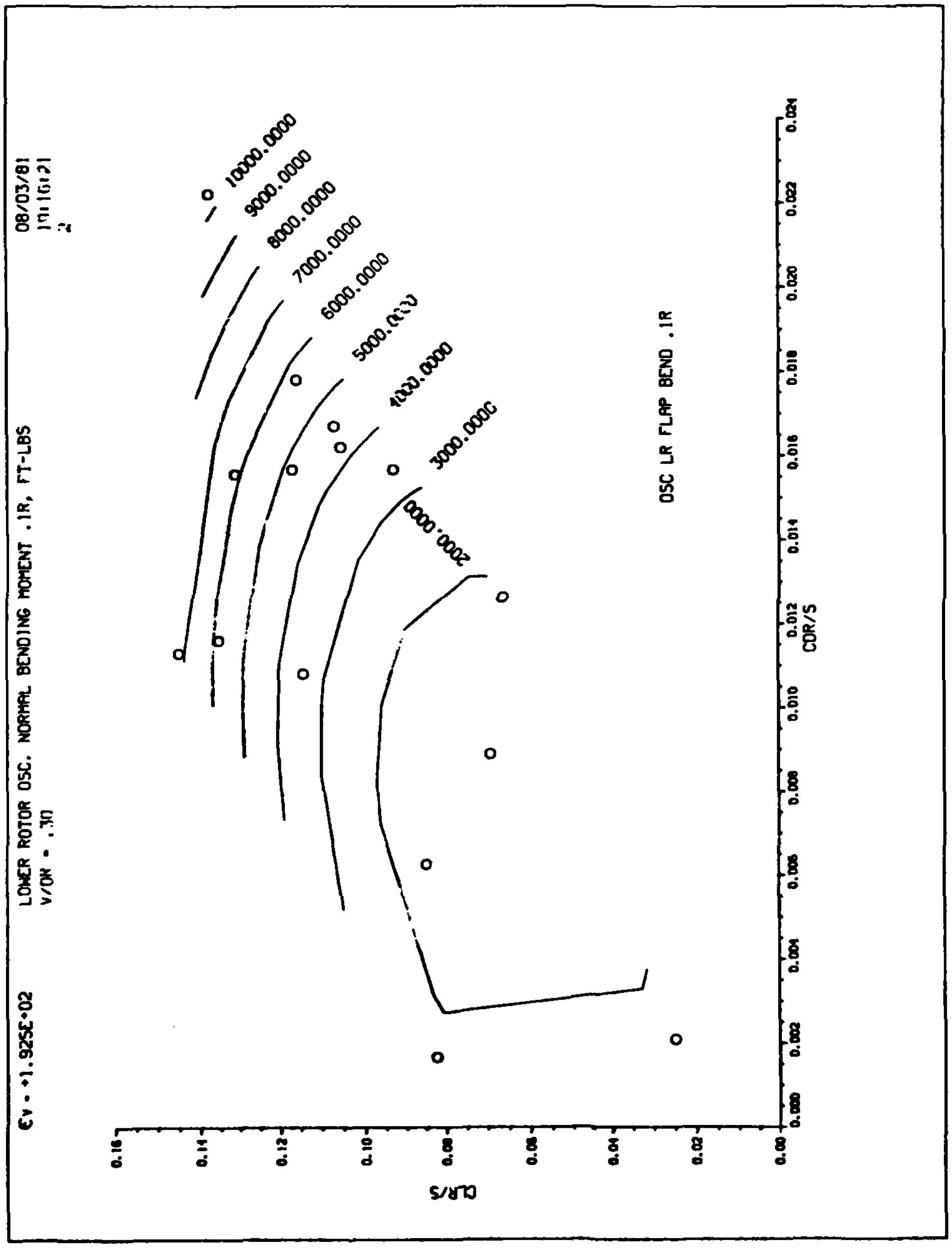

€v = +1.305E+02
LOWER ROTOR MEAN NORMAL BENDING MOMENT .1R, FT-LBS
V/ΩR = .25
08/03/81
19:49:55
2
MEAN LR FLAP BEND .1R
CLR/S
CDR/S
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024


€v = +2.267E+02
LOWER ROTOR MEAN NORMAL BENDING MOMENT .1R, FT-LBS
V/OR = .30
08/03/81
19:39:03
2
MEAN LR FLAP BEND .1R
CLR/S
CDR/S
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024

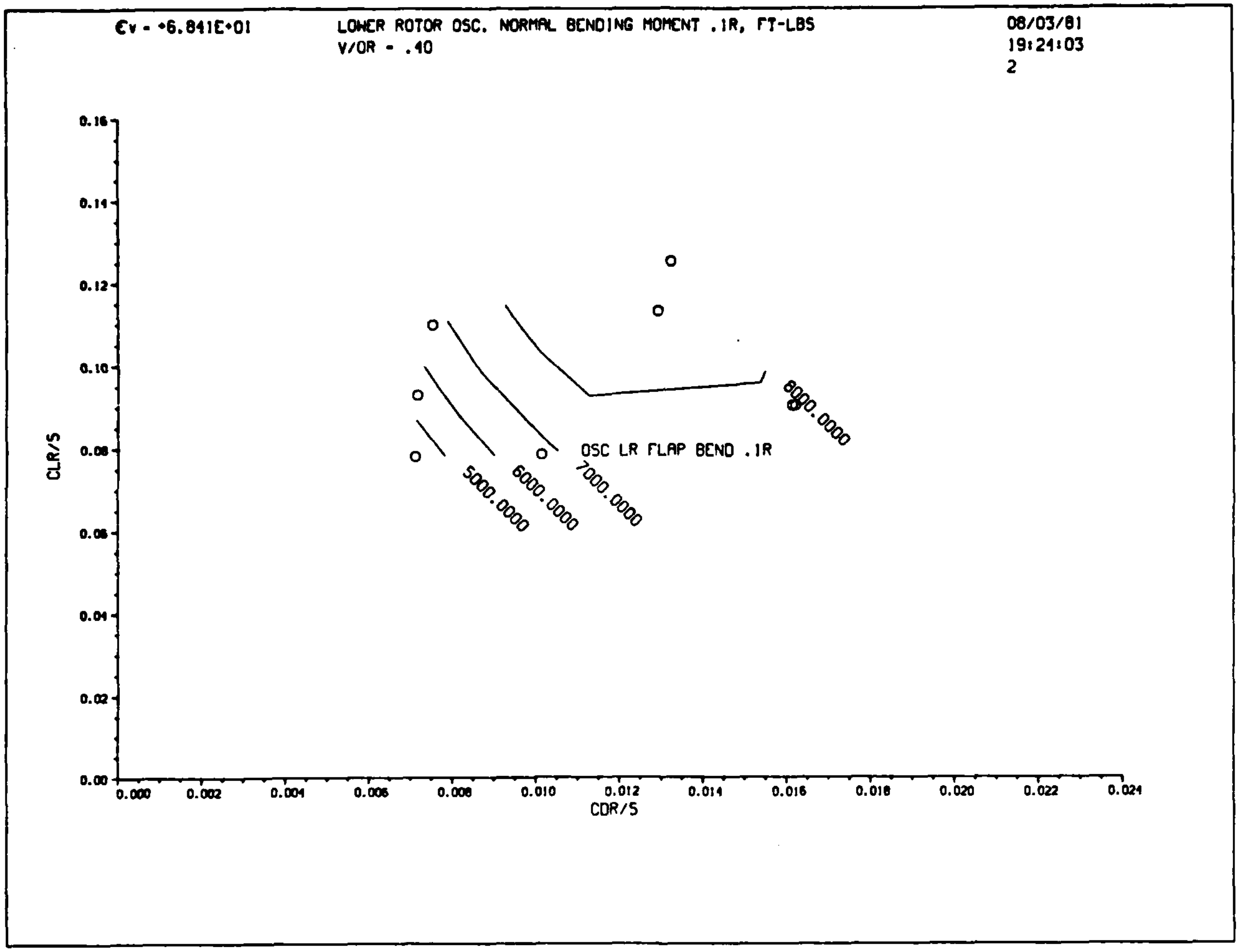


€V - +2.759E+01
LOWER ROTOR MEAN NORMAL BENDING MOMENT .1R, FT-LBS
V/OR - .40
08/03/81
19:30:04
2
MEAN LR FLAP BEND .1R
2000.0000
1000.0000
0.0000
-1000.0000
-2000.0000
CLR/S
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
CDR/S
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024

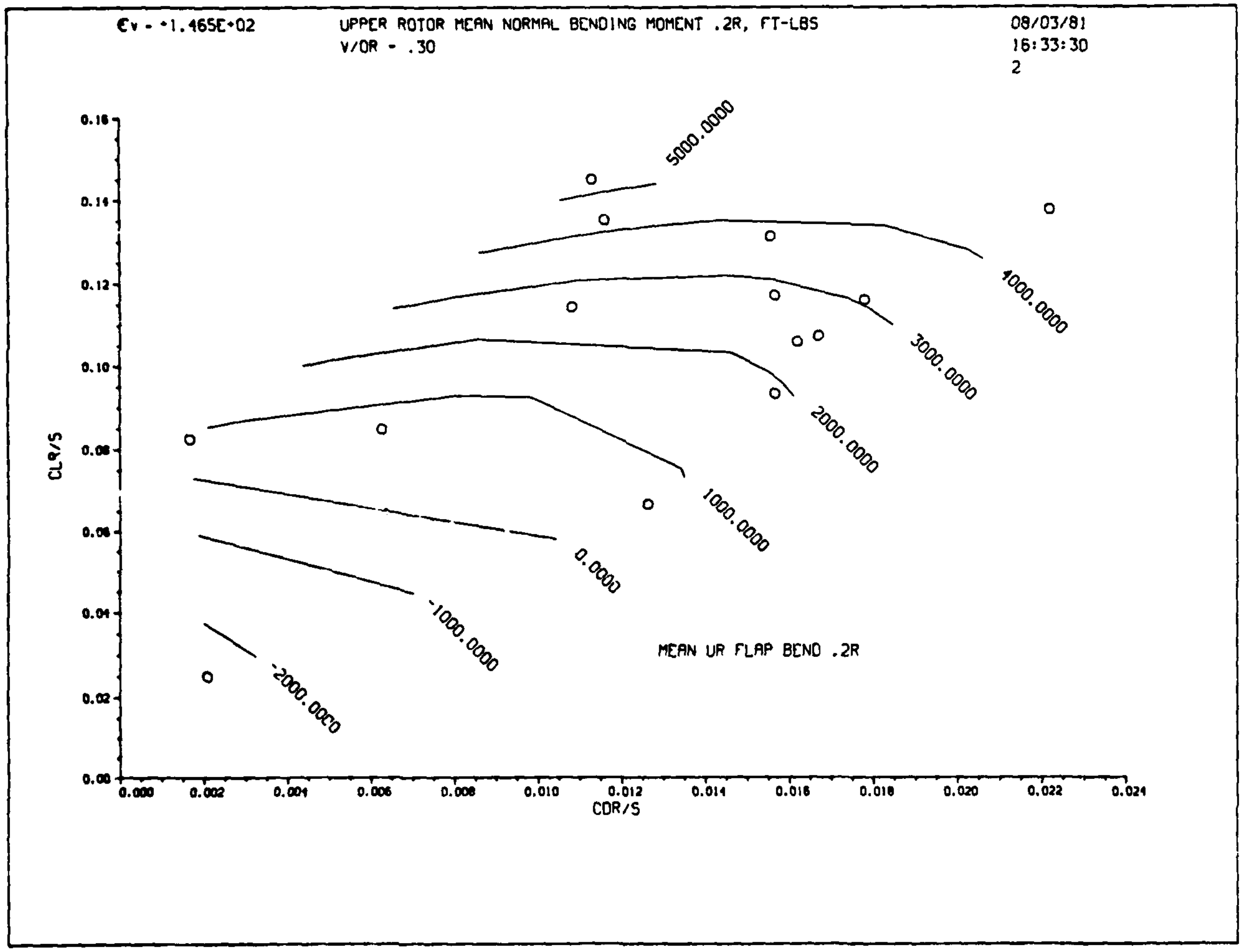

€v = -1.443E+02
LOWER ROTOR OSC. NORMAL BENDING MOMENT .1R, FT-LBS
V/OR = .25
08/03/81
19:08:53
2
5000.0000
4000.0000
3000.0000
2000.0000
CDR/S
CLR/S



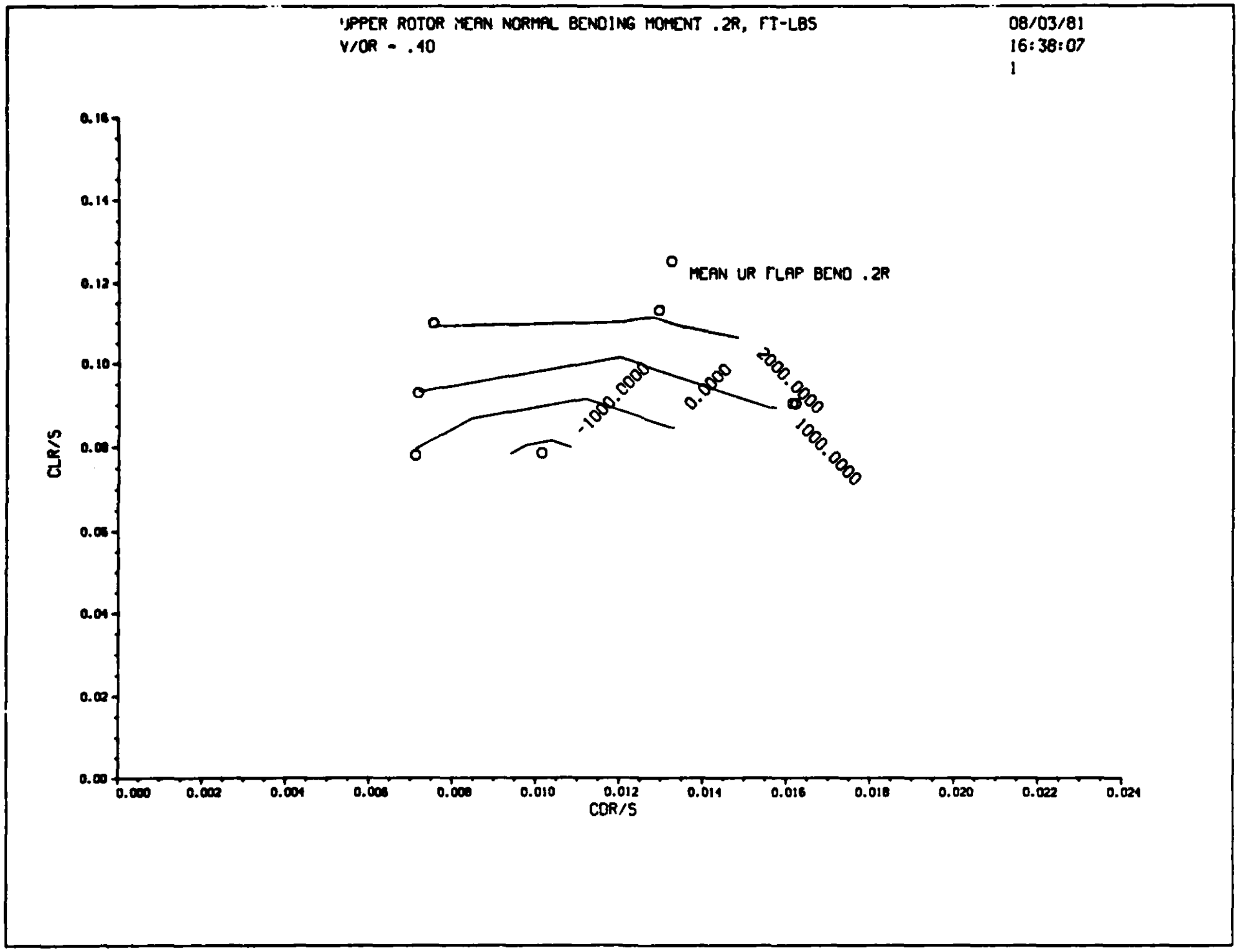
CV = +1.925E+02
LOWER ROTOR OSC. NORMAL BENDING MOMENT .1R, FT-LBS
V/ΩR = .30
08/03/81
10000.0000
9000.0000
8000.0000
7000.0000
6000.0000
4000.0000
3000.0000
2000.0000
OSC LR FLAP BEND .1R
CDR/S
CLR/S



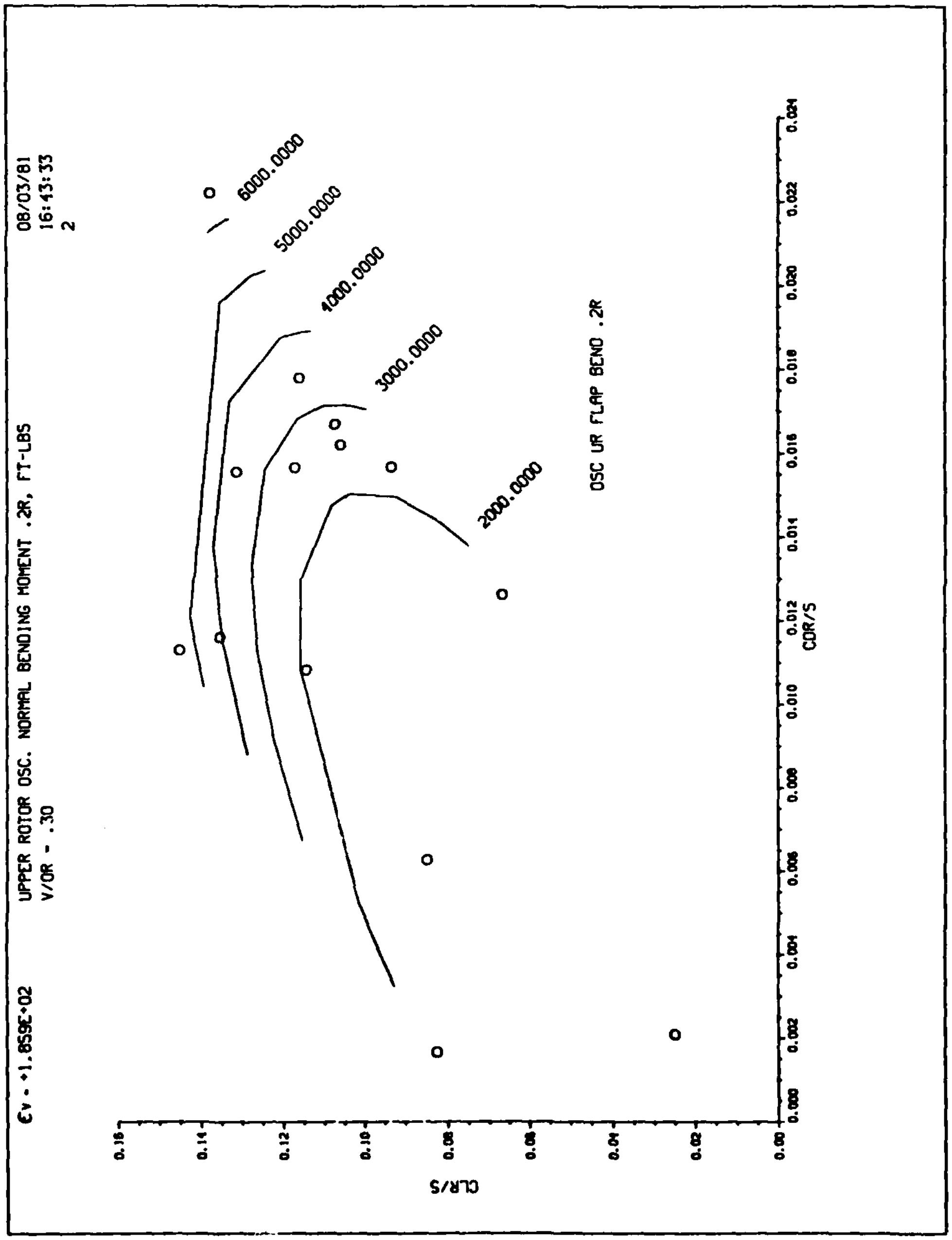
Cv - +6.841E+01
LOWER ROTOR OSC. NORMAL BENDING MOMENT .1R, FT-LBS
V/OR - .40
08/03/81
19:24:03
2
CLR/S
CDR/S
OSC LR FLAP BEND .1R
5000.0000
6000.0000
7000.0000
8000.0000
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024



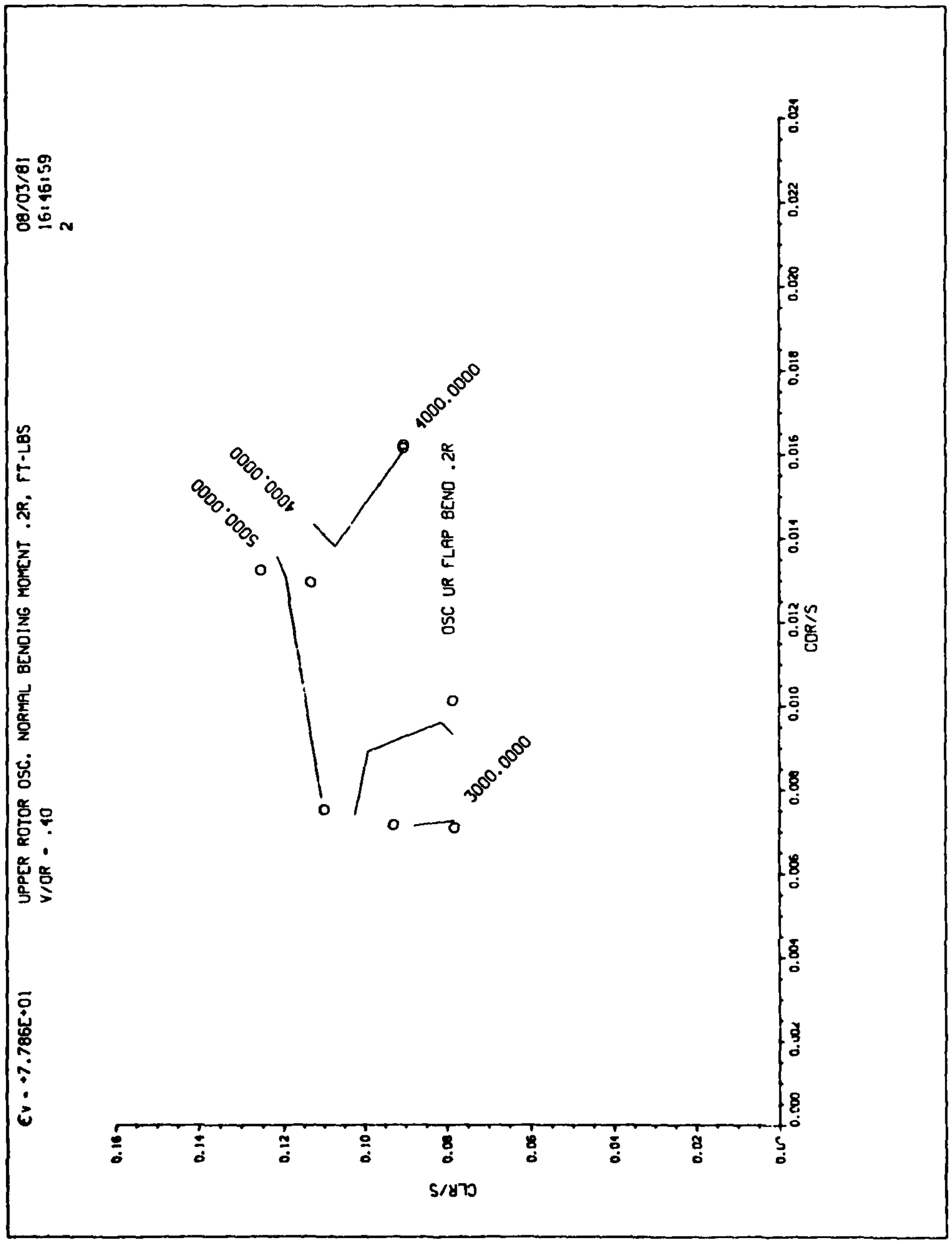
€v - +1.465E+02
UPPER ROTOR MEAN NORMAL BENDING MOMENT .2R, FT-LBS
V/ΩR - .30
08/03/81
16:33:30
2
5000.0000
4000.0000
3000.0000
2000.0000
1000.0000
0.0000
-1000.0000
-2000.0000
MEAN UR FLAP BEND .2R
CL8/S
CDR/S
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024



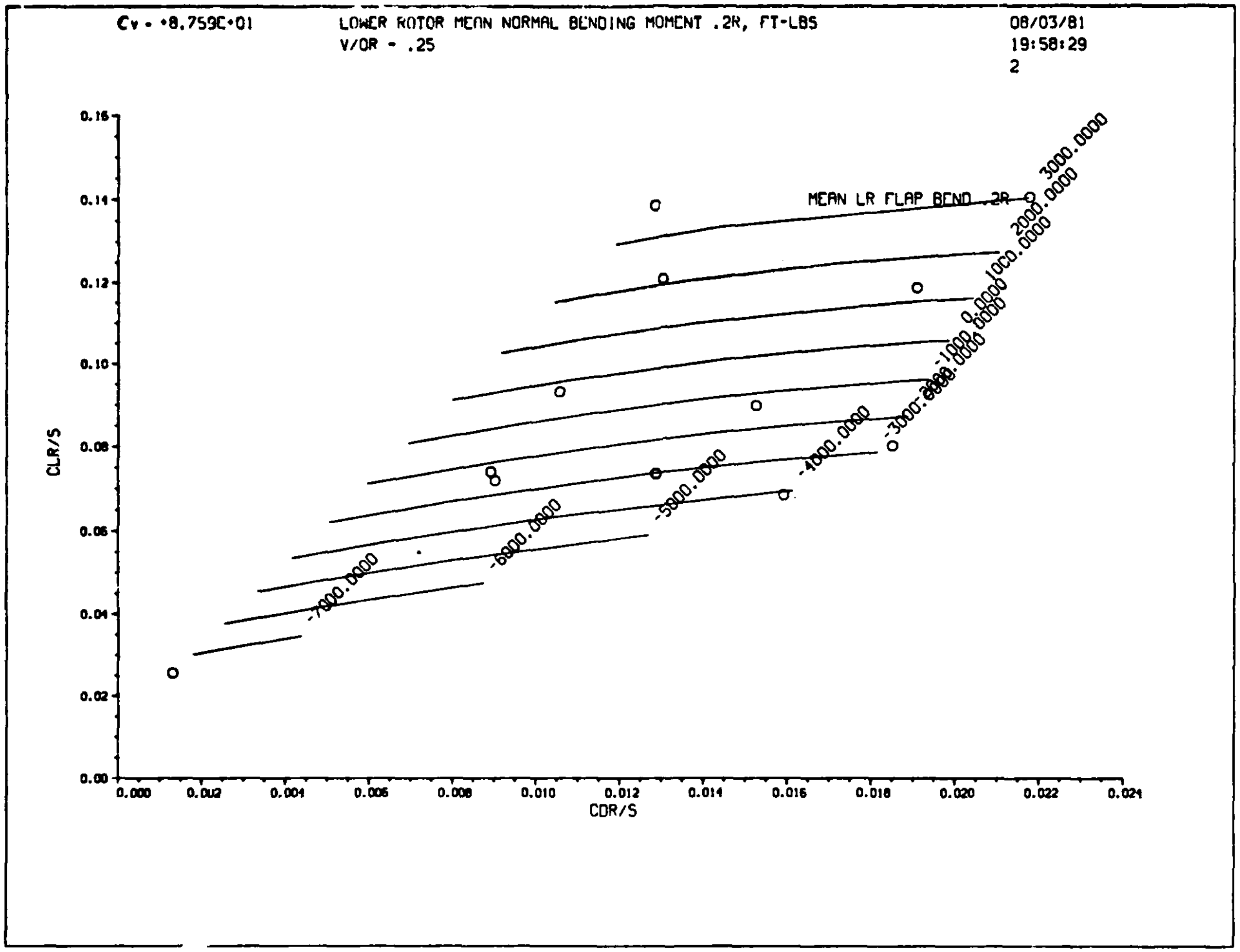
UPPER ROTOR MEAN NORMAL BENDING MOMENT .2R, FT-LBS
V/OR = .40
08/03/81
16:38:07
1
MEAN UR FLAP BEND .2R
2000.0000
1000.0000
0.0000
-1000.0000
CLR/S
CDR/S
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024

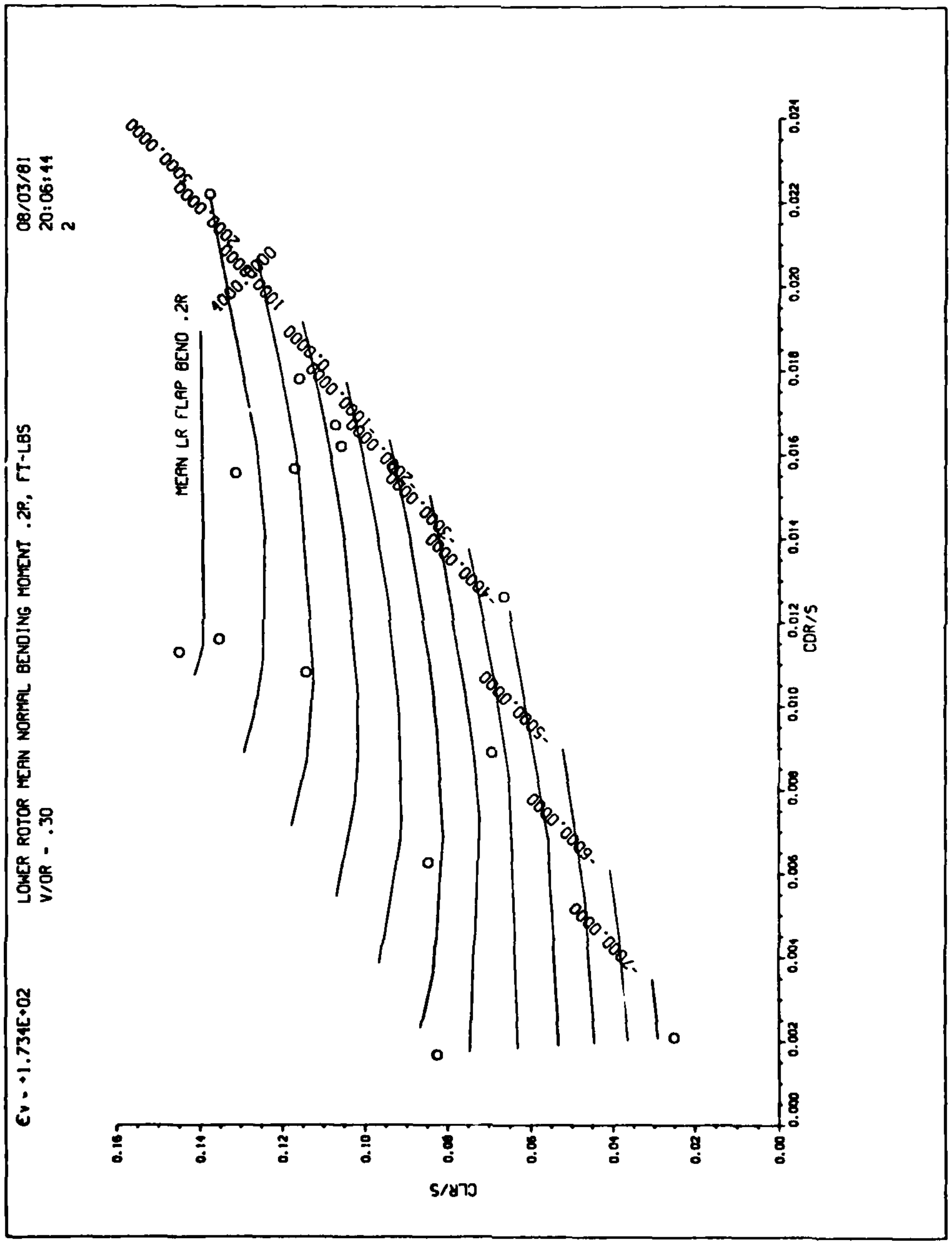


Єv - +1.859E+02
UPPER ROTOR OSC. NORMAL BENDING MOMENT .2R, FT-LBS
V/ΩR - .30
08/03/81
16:43:33
2
6000.0000
5000.0000
4000.0000
3000.0000
2000.0000
OSC UR FLAP BEND .2R
CLR/S
CDR/S
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024

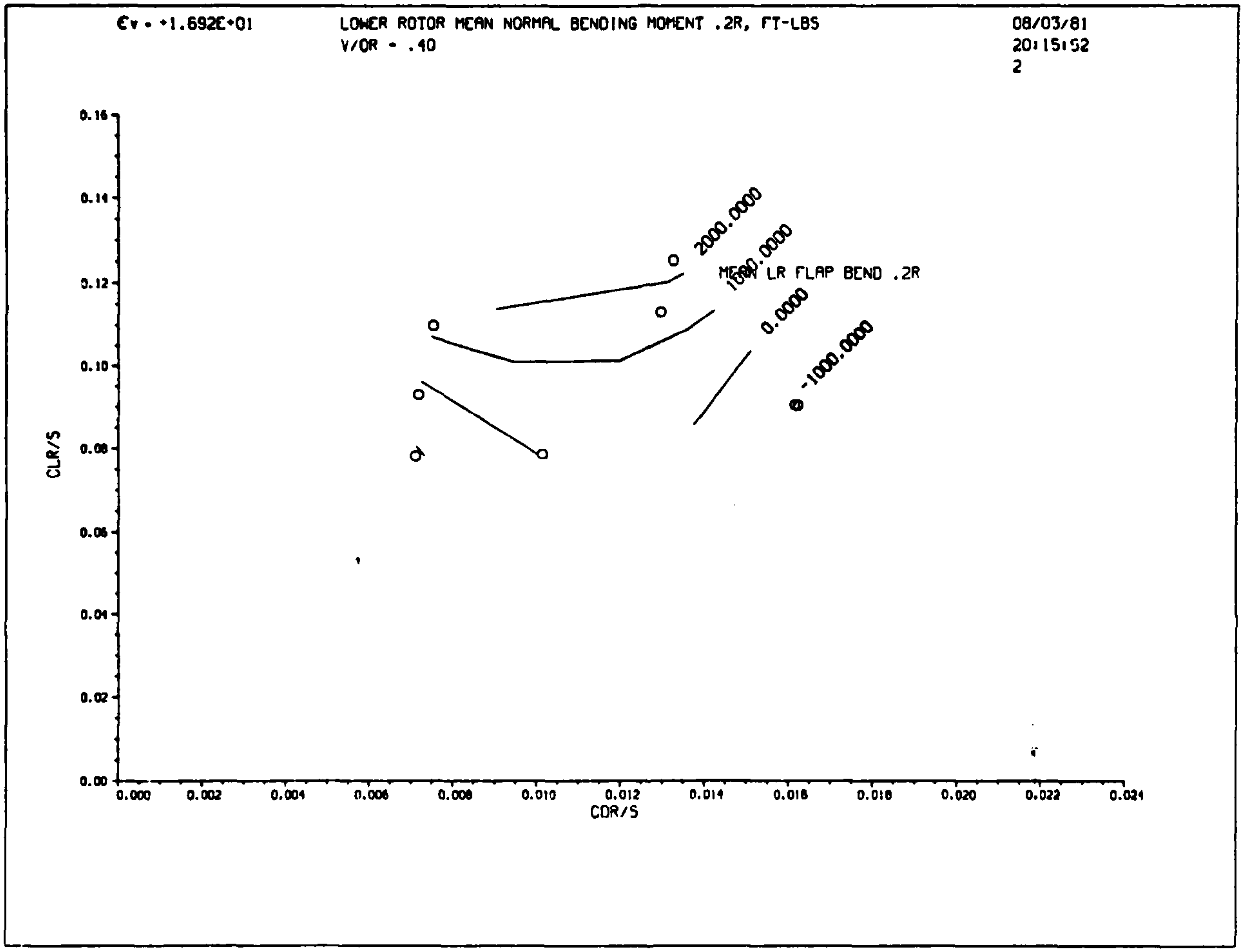


Єv = -7.786E-01
UPPER ROTOR OSC. NORMAL BENDING MOMENT .2R, FT-LBS
V/ΩR = .40
08/03/81
16:46:59
2
OSC UR FLAP BEND .2R
5000.0000
4000.0000
4000.0000
3000.0000
CLR/S
CDR/S
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.000
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024

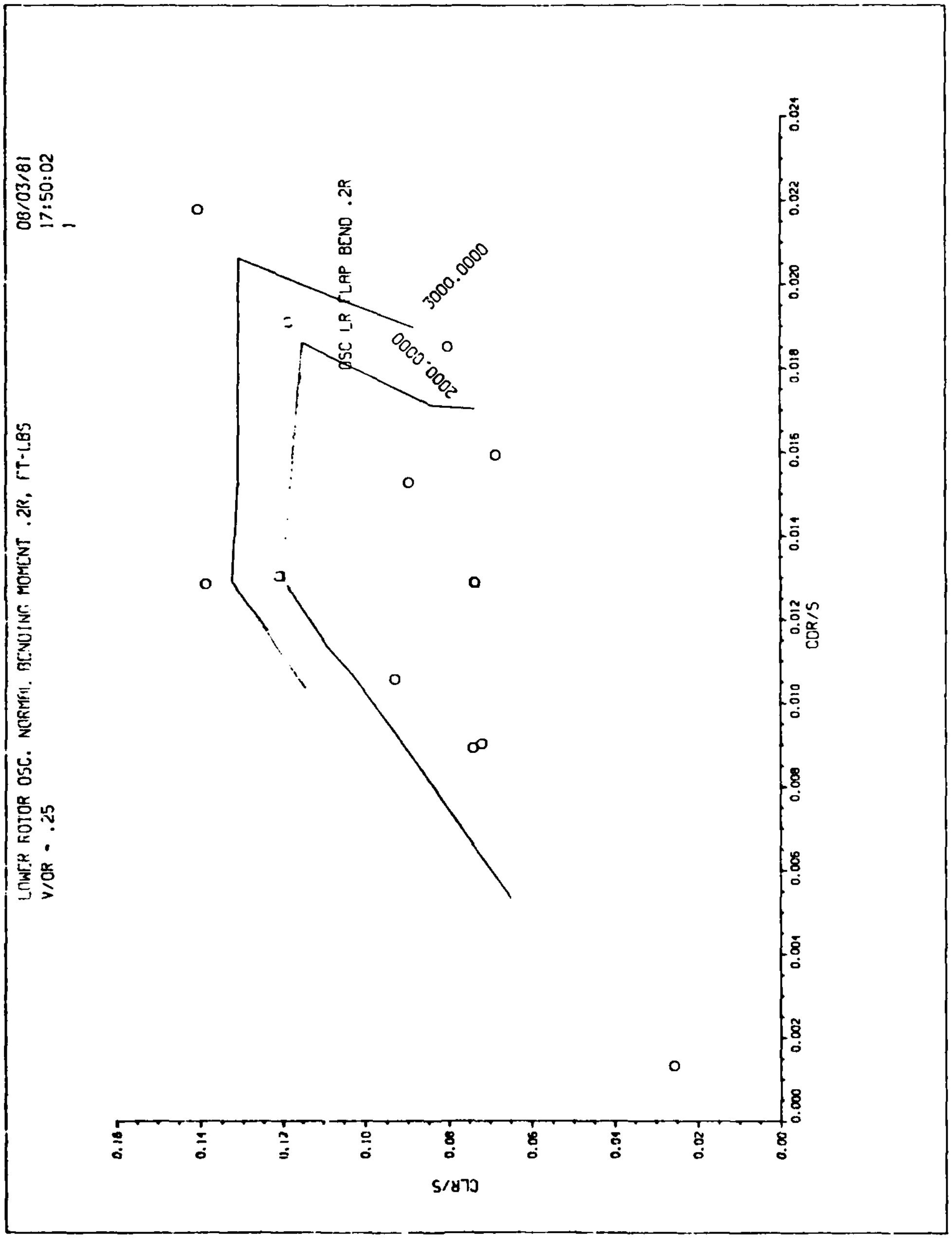

Cv - +8.759E+01
LOWER ROTOR MEAN NORMAL BENDING MOMENT .2R, FT-LBS
V/OR - .25
08/03/81
19:58:29
2
MEAN LR FLAP BEND .2R
3000.0000
2000.0000
1000.0000
0.0000
-1000.0000
-2000.0000
-3000.0000
-4000.0000
-5000.0000
-6000.0000
-7000.0000
CLR/S
CDR/S
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024

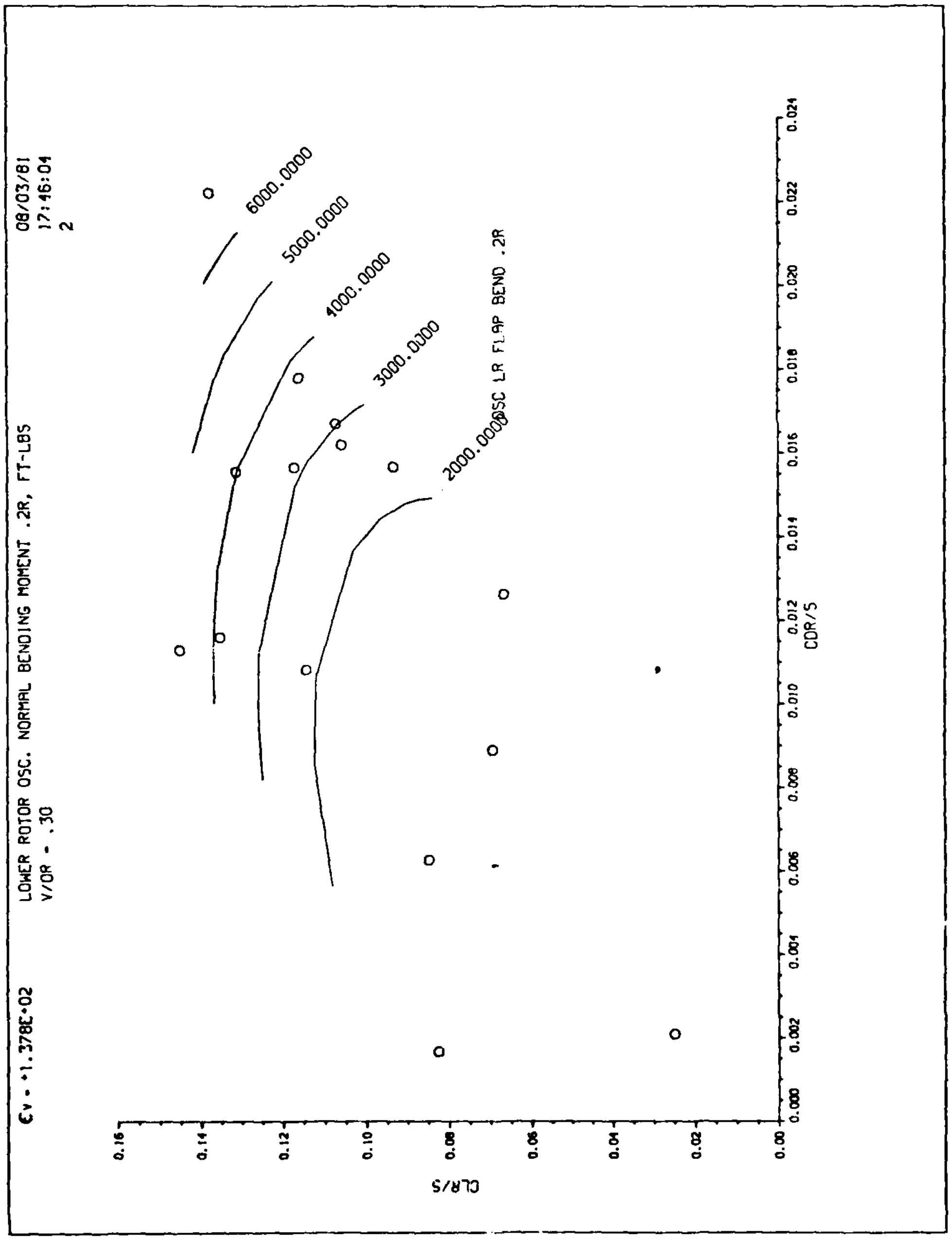


Cv = +1.734E+02
LOWER ROTOR MEAN NORMAL BENDING MOMENT .2R, FT-LBS
V/OR = .30
08/03/81
20:06:44
2
MEAN LR FLAP BEND .2R
CLR/S
CDR/S



€v - +1.692E+01
LOWER ROTOR MEAN NORMAL BENDING MOMENT .2R, FT-LBS
V/OR - .40
08/03/81
20:15:52
2
MEAN LR FLAP BEND .2R
2000.0000
1000.0000
0.0000
-1000.0000
CLR/S
CDR/S
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024

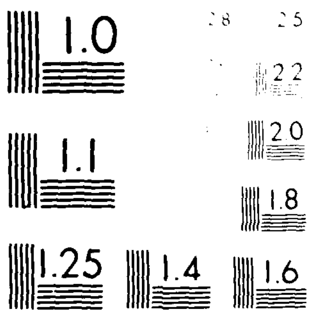

LOWER ROTOR OSC. NORMAL BENDING MOMENT .2R, FT-LBS
V/OR = .25
08/03/81
17:50:02
OSC LR FLAP BEND .2R
3000.0000
2000.0000
CDR/S
CLR/S

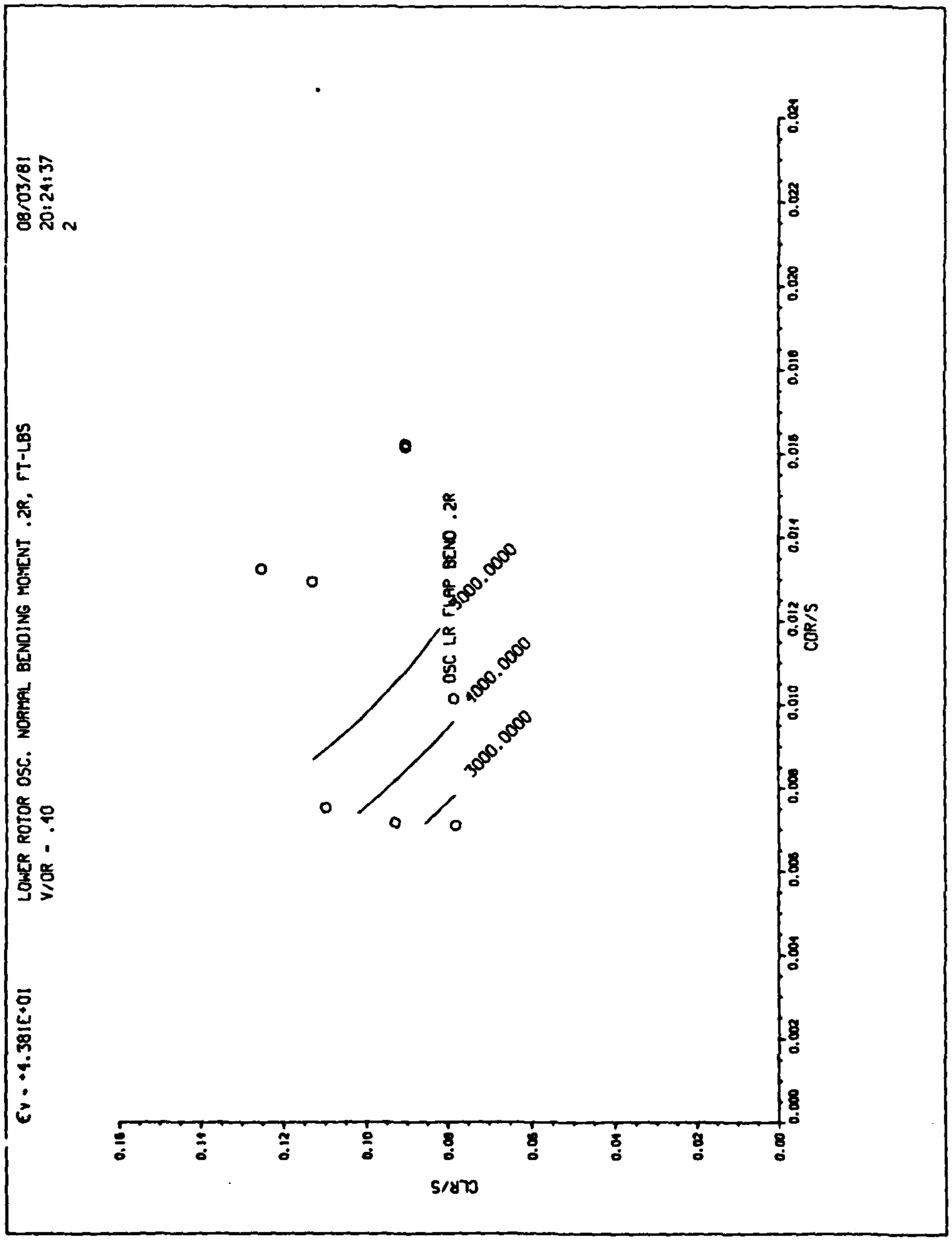

Ev = +1.378E+02
LOWER ROTOR OSC. NORMAL BENDING MOMENT .2R, FT-LBS
V/OR = .30
08/03/81
17:46:04
2
6000.0000
5000.0000
4000.0000
3000.0000
2000.0000
OSC LR FLAP BEND .2R
CDR/S
CLR/S
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16

AD-A110 278 NATIONAL AERONUATICS AND SPACE ADMINISTRATION MOFFET--ETC F/6 20/4
PERFORMANCE AND LOADS DATA FROM A WIND TUNNEL TEST OF A FULL-SC--ETC(U)
OCT 81 F F FELKER
UNCLASSIFIED NASA-A-8732 NASA-TM-81329 NL

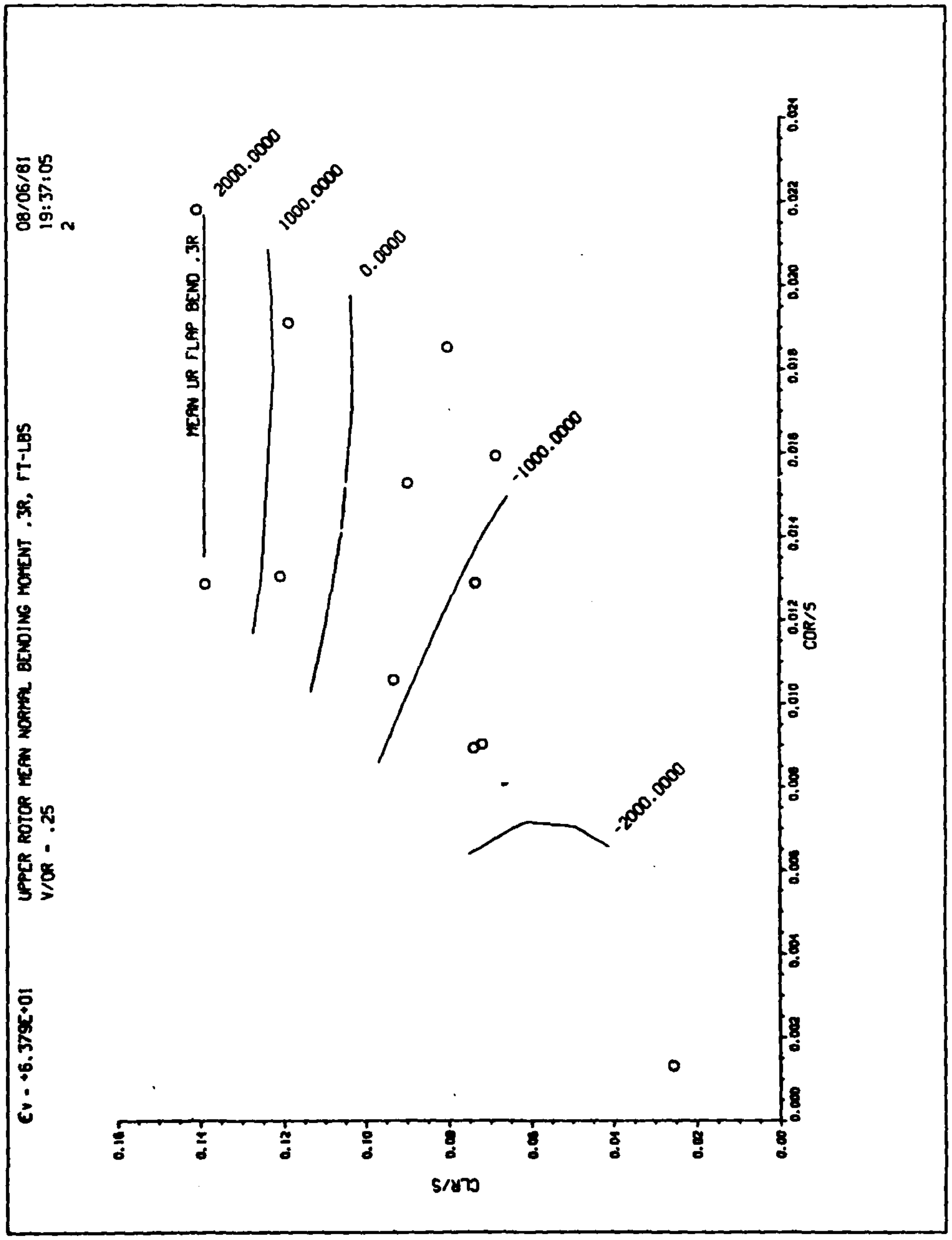
4 OF 4
AD A
110278

END
DATE
FILMED
03-82
DTIC

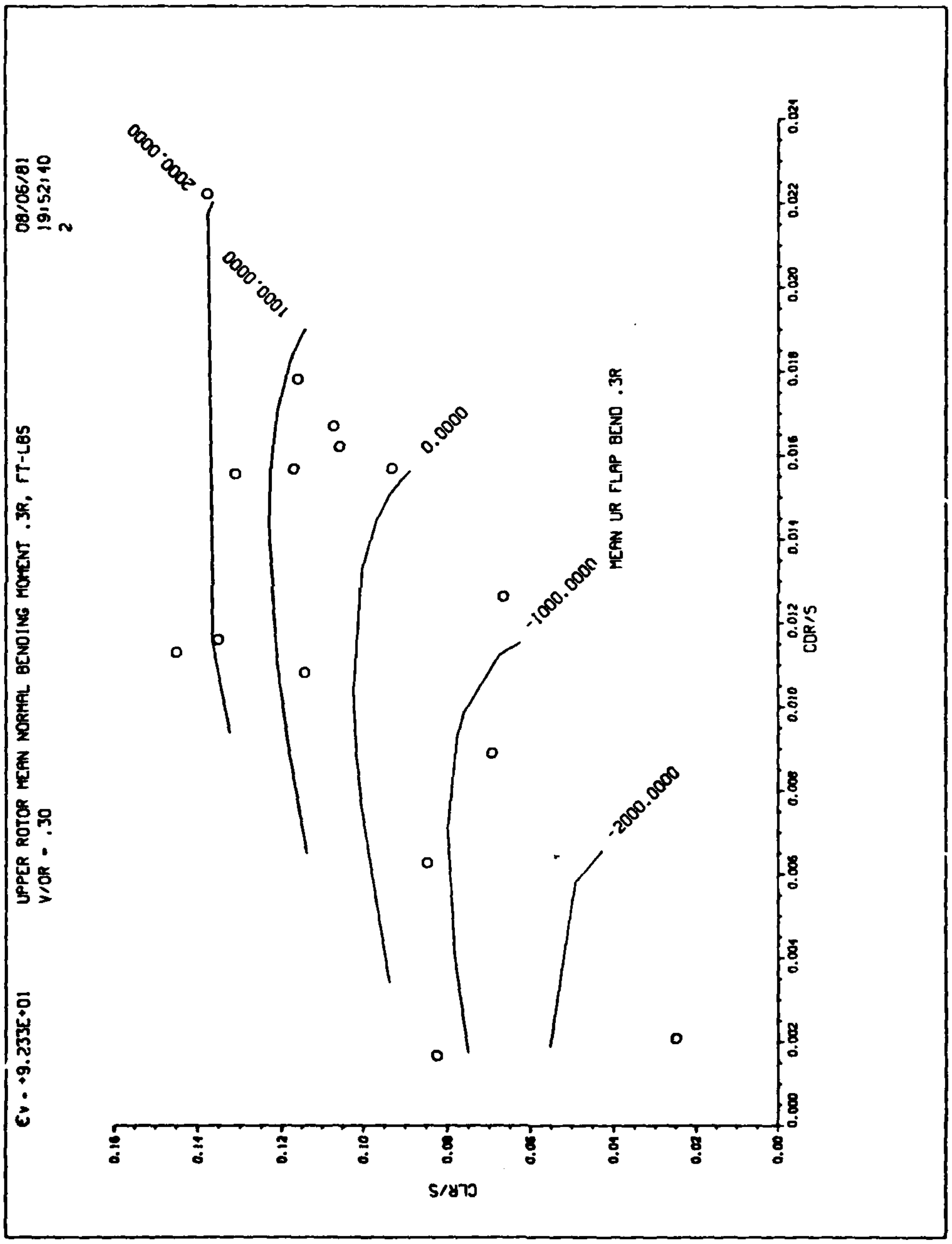

1.0
2.8
2.5
2.2
2.0
1.1
1.8
1.25
1.4
1.6



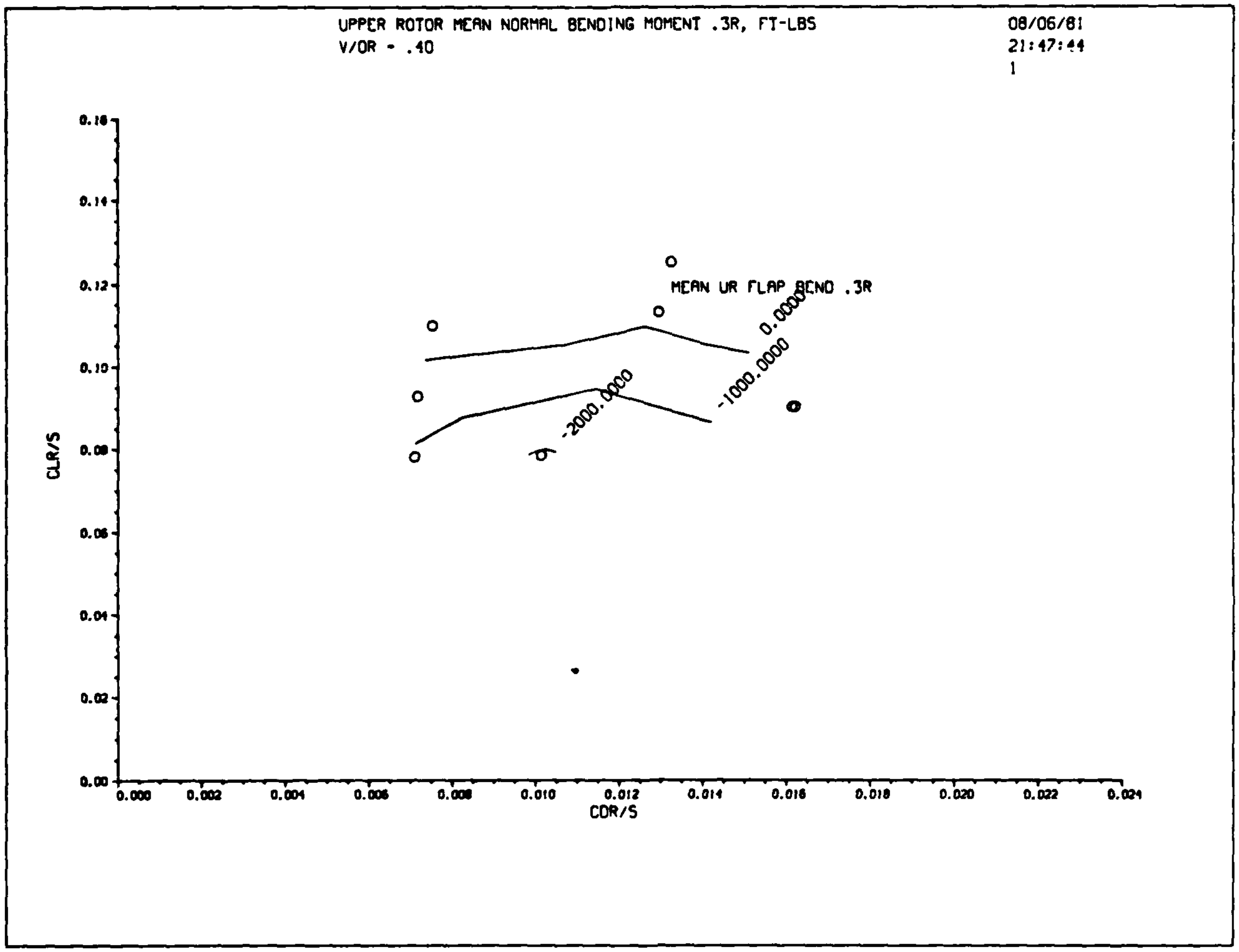
EV = +4.381E+01
LOWER ROTOR OSC. NORMAL BENDING MOMENT .2R, FT-LBS
V/OR = .40
08/03/81
20:24:37
2
OSC LR FLAP BEND .2R
5000.0000
4000.0000
3000.0000
CDR/S
CLR/S



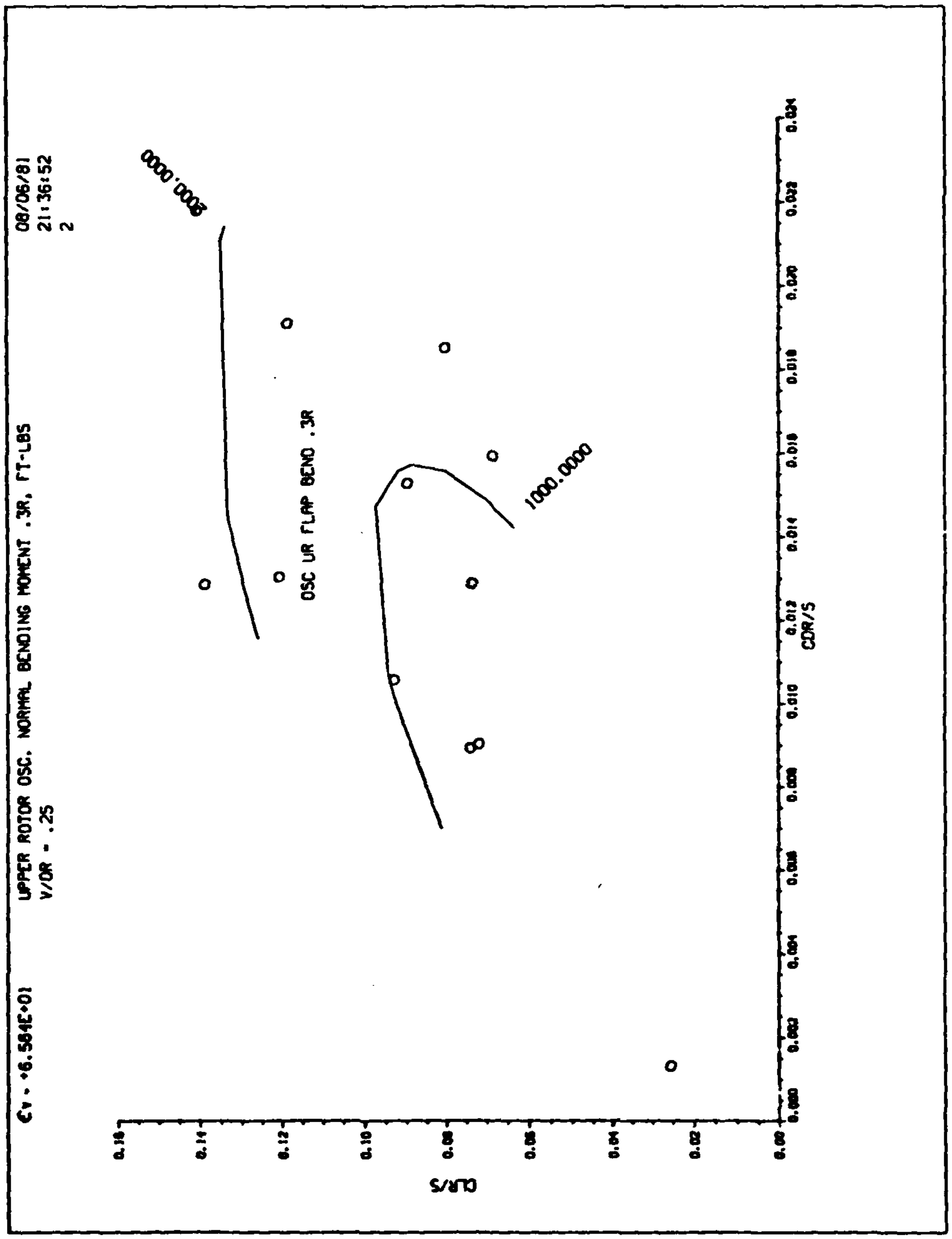
Ev = +6.379E+01
UPPER ROTOR MEAN NORMAL BENDING MOMENT .3R, FT-LBS
V/OR = .25
08/06/81
19:37:05
2
MEAN UR FLAP BEND .3R
2000.0000
1000.0000
0.0000
-1000.0000
-2000.0000
CLR/S
CQR/S



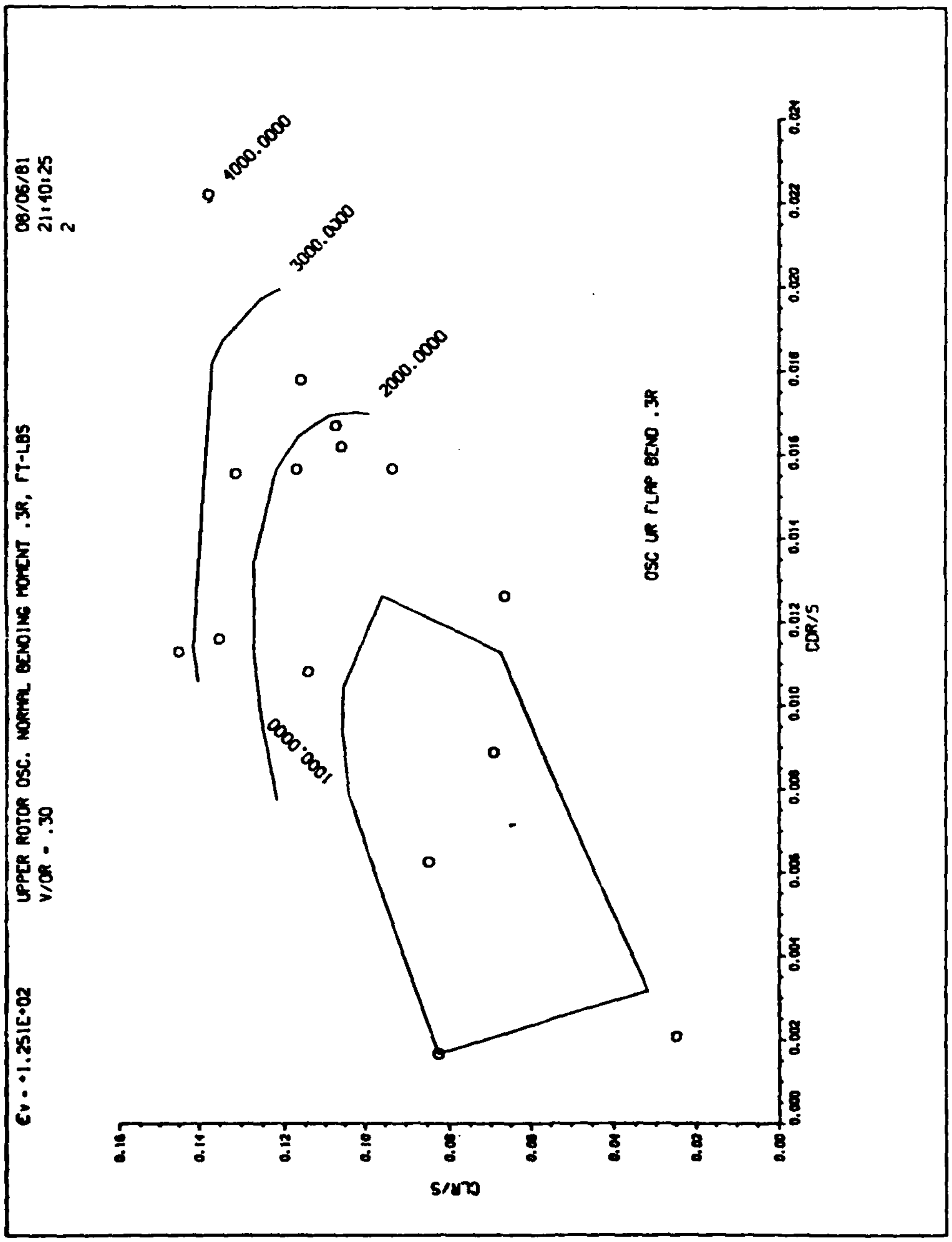
ϵv = +9.233E+01
UPPER ROTOR MEAN NORMAL BENDING MOMENT .3R, FT-LBS
V/ΩR = .30
08/06/81
19:52:40
2
2000.0000
1000.0000
0.0000
-1000.0000
-2000.0000
MEAN UR FLAP BEND .3R
CDR/S
CLR/S
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16

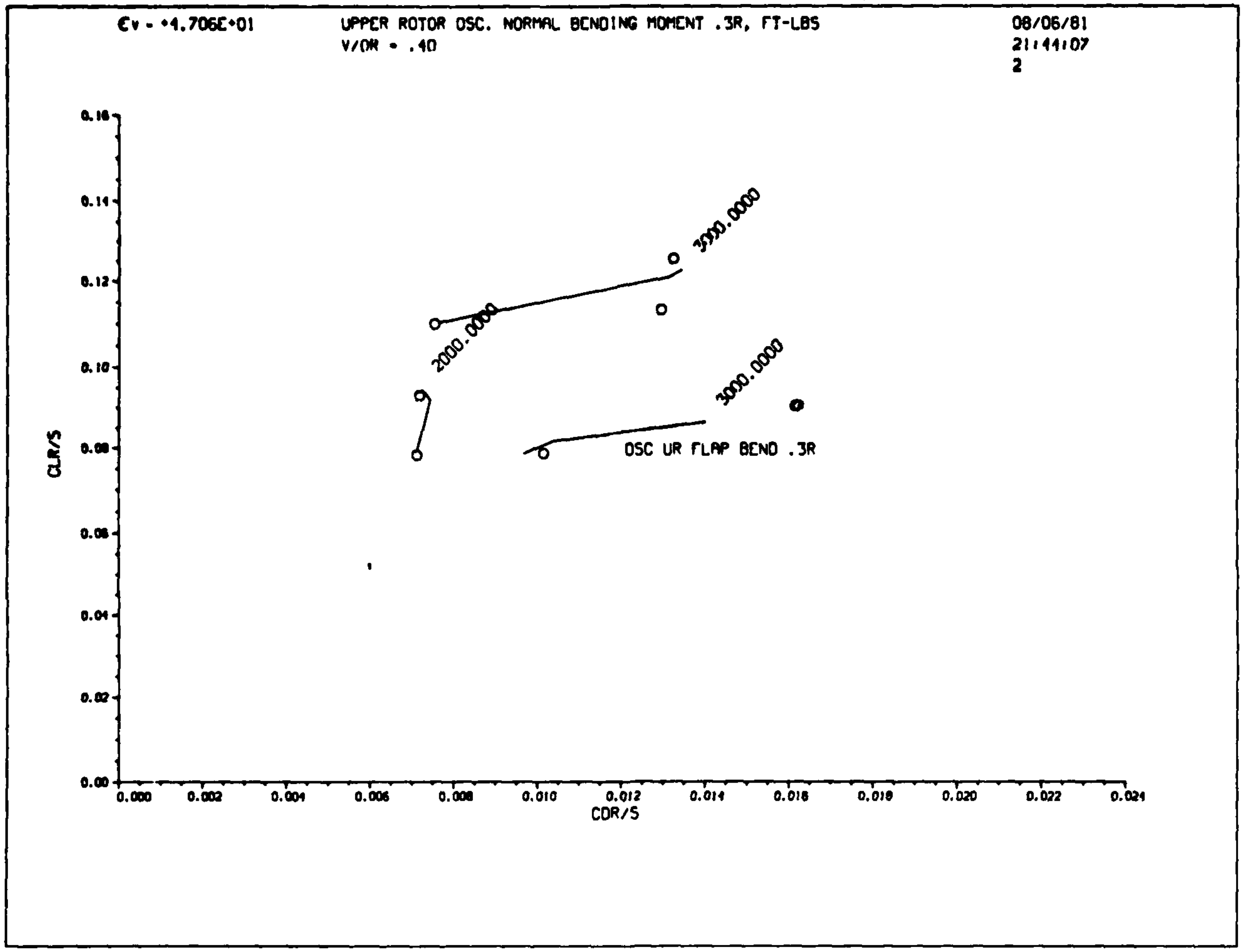


UPPER ROTOR MEAN NORMAL BENDING MOMENT .3R, FT-LBS
V/OR = .40
08/06/81
21:47:44
1
MEAN UR FLAP BEND .3R
0.0000
-1000.0000
-2000.0000
CLR/S
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024
COR/S



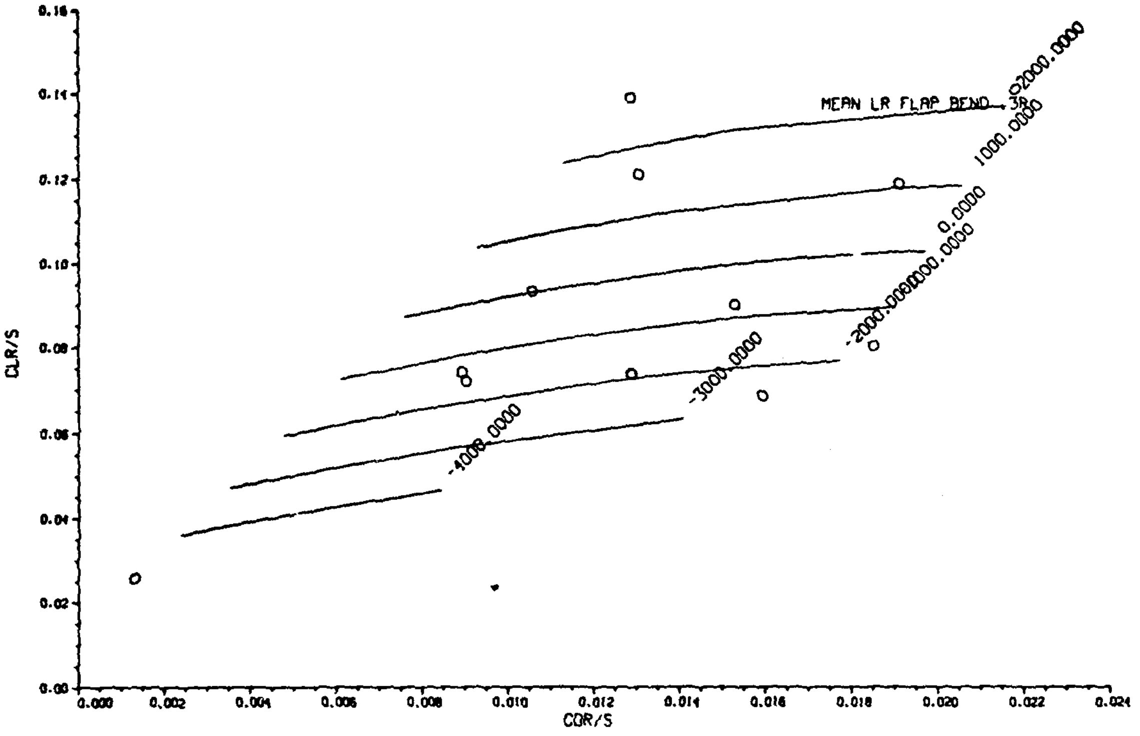
Cv = +6.584E+01
UPPER ROTOR OSC. NORMAL BENDING MOMENT .3R, FT-LBS
V/OR = .25
08/06/81
21:36:52
2
OSC UR FLAP BEND .3R
2000.0000
1000.0000
CLR/S
CDR/S

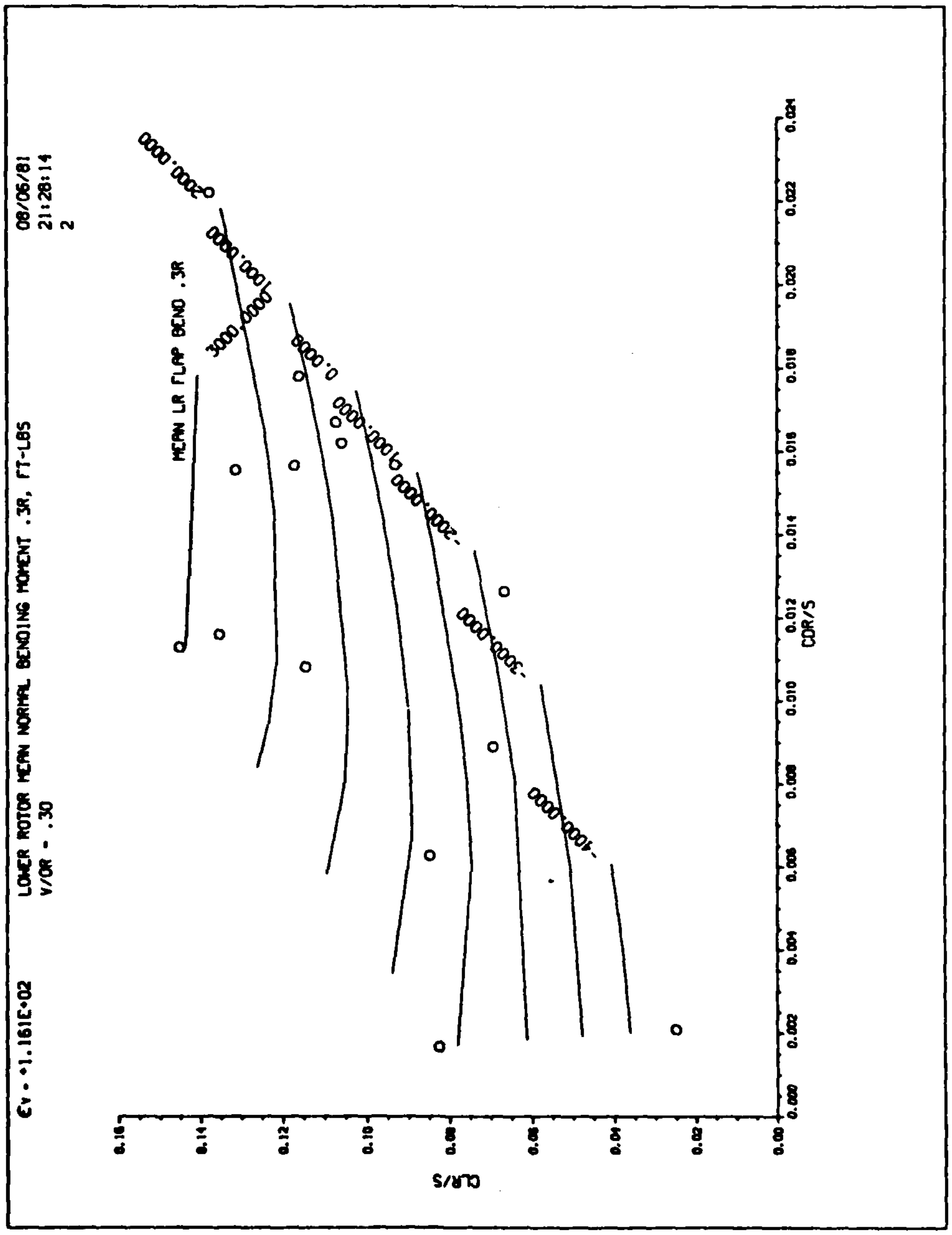

Cv = +1.251E+02
UPPER ROTOR OSC. NORMAL BENDING MOMENT .3R, FT-LBS
V/OR = .30
08/06/81
21:40:25
2
4000.0000
3000.0000
2000.0000
1000.0000
OSC UR FLAP BEND .3R
CDR/S
CLR/S



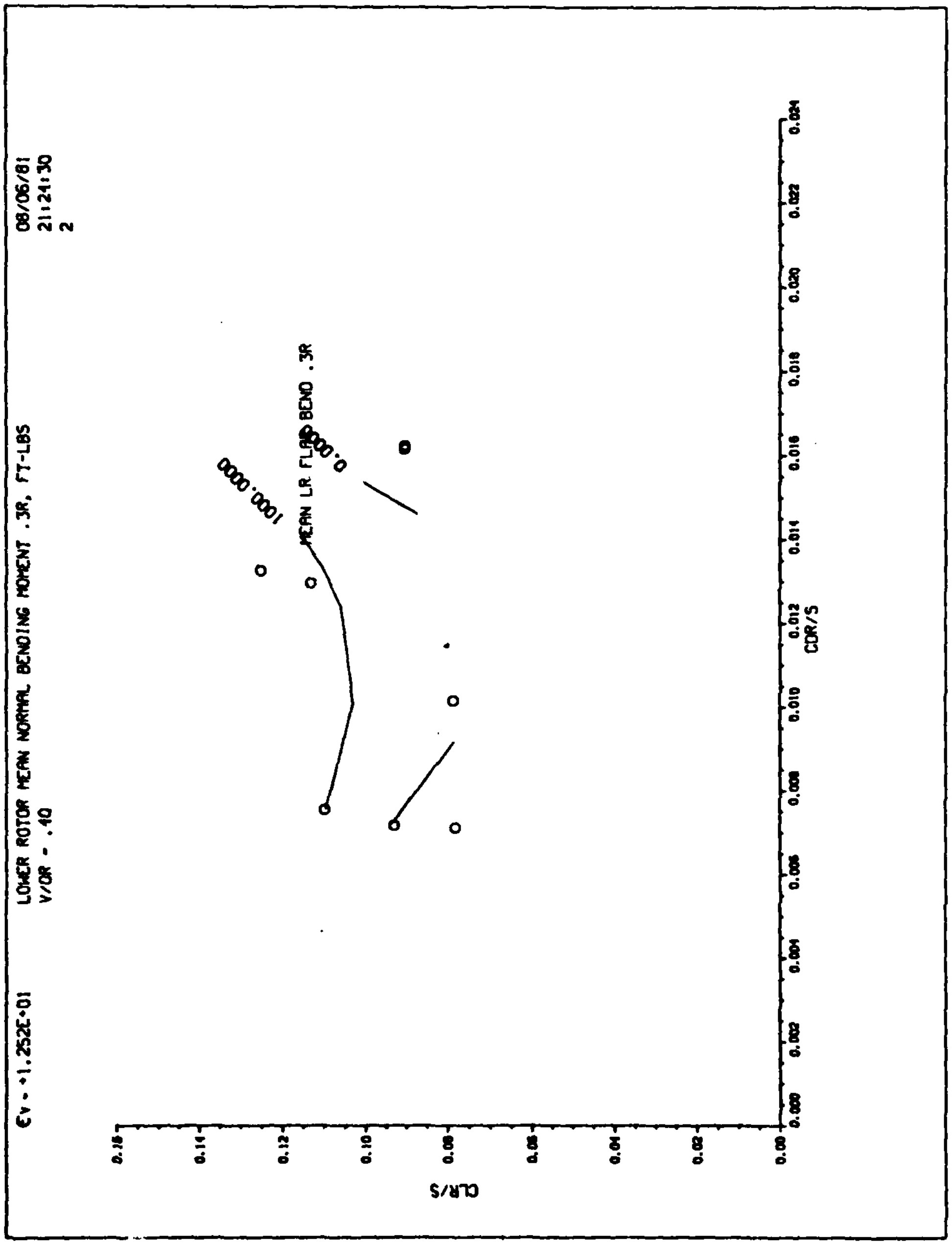
Cv = +4.706E+01
UPPER ROTOR OSC. NORMAL BENDING MOMENT .3R, FT-LBS
V/OR = .40
08/06/81
21:44:07
2
CLR/S
CDR/S
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024
3000.0000
2000.0000
3000.0000
OSC UR FLAP BEND .3R

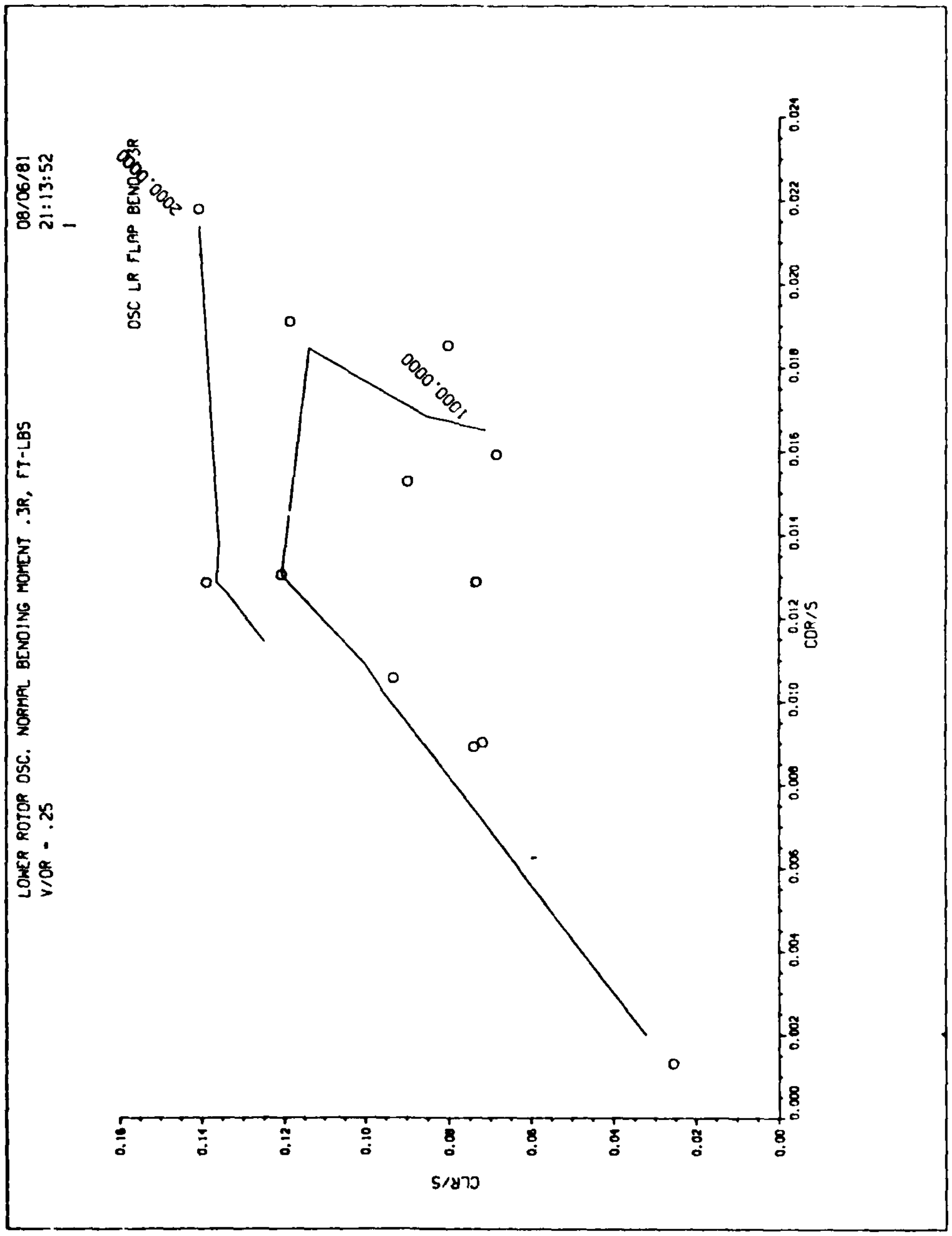
€v = +6.478E+01 LOWER ROTOR MEAN NORMAL BENDING MOMENT .3R, FT-LBS 08/06/81
V/OR = .25 21:32:39
2



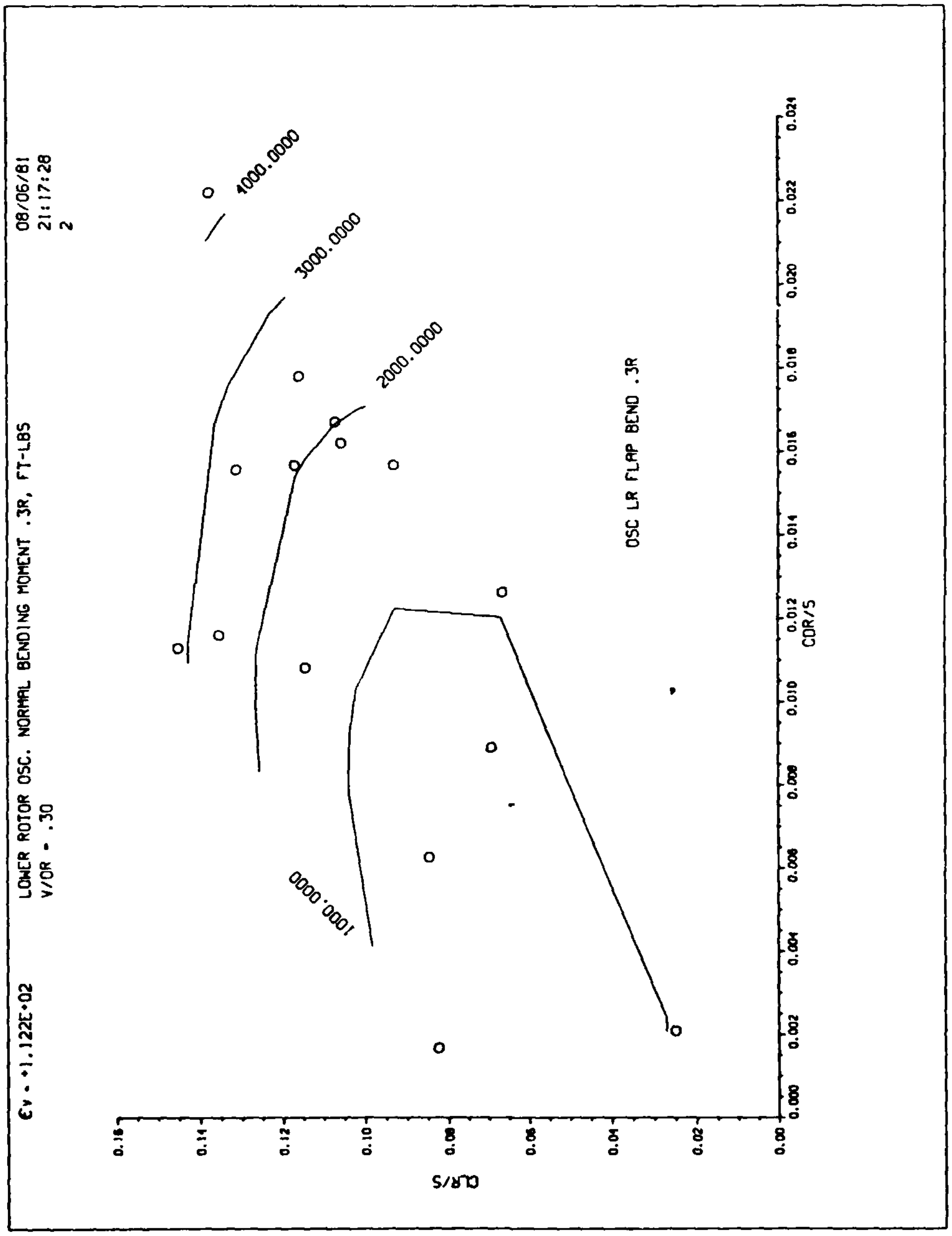


Ev = +1.161E+02
LOWER ROTOR MEAN NORMAL BENDING MOMENT .3R, FT-LBS
V/OR = .30
08/06/81
21:28:14
2
MEAN LR FLAP BEND .3R
CLR/S
CDR/S

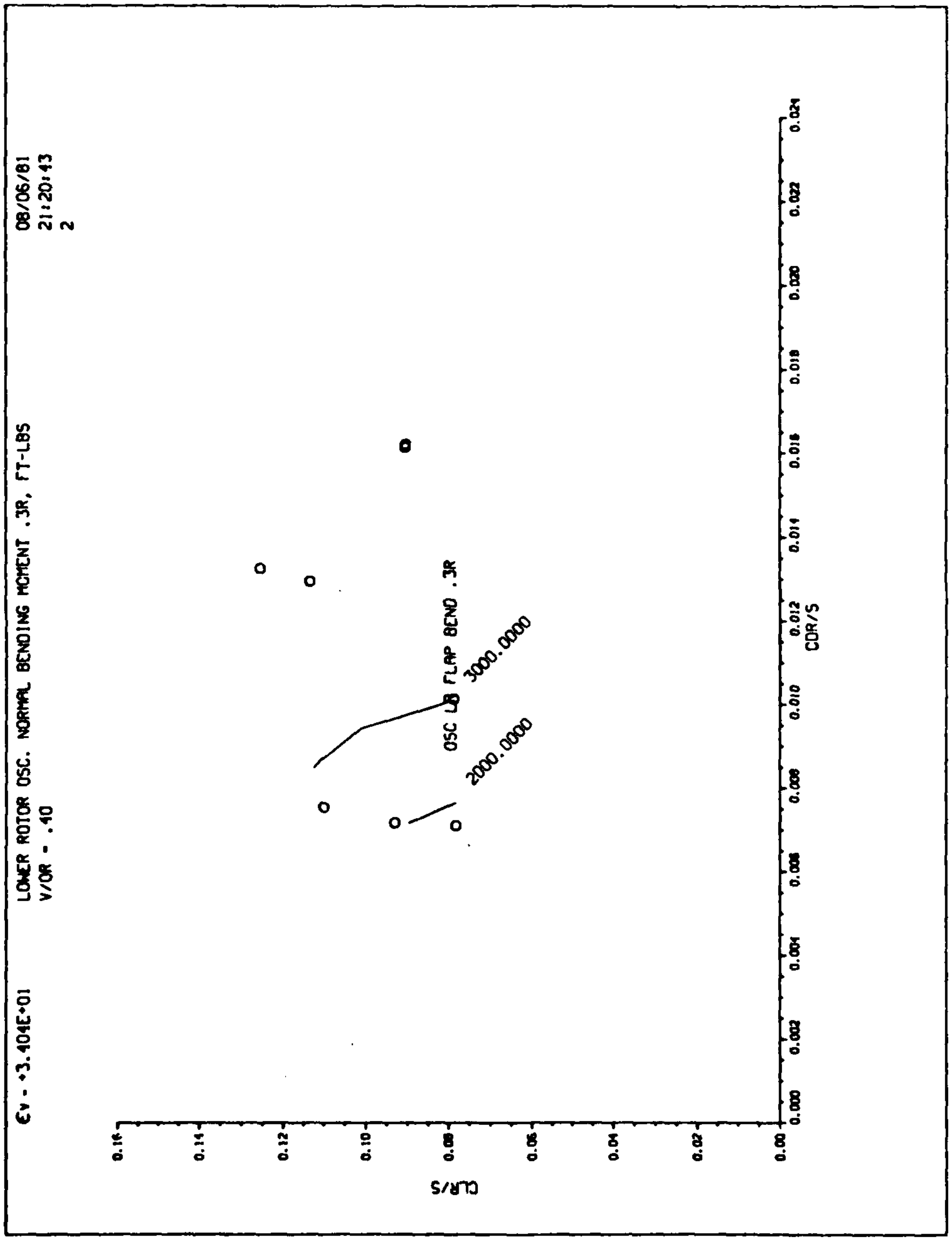

εv = +1.252E+01
LOWER ROTOR MEAN NORMAL BENDING MOMENT .3R, FT-LBS
V/ΩR = .40
08/06/81
21:24:30
2
MEAN LR FLAP BEND .3R
1000.0000
0.0000
CLR/S
CDR/S
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024



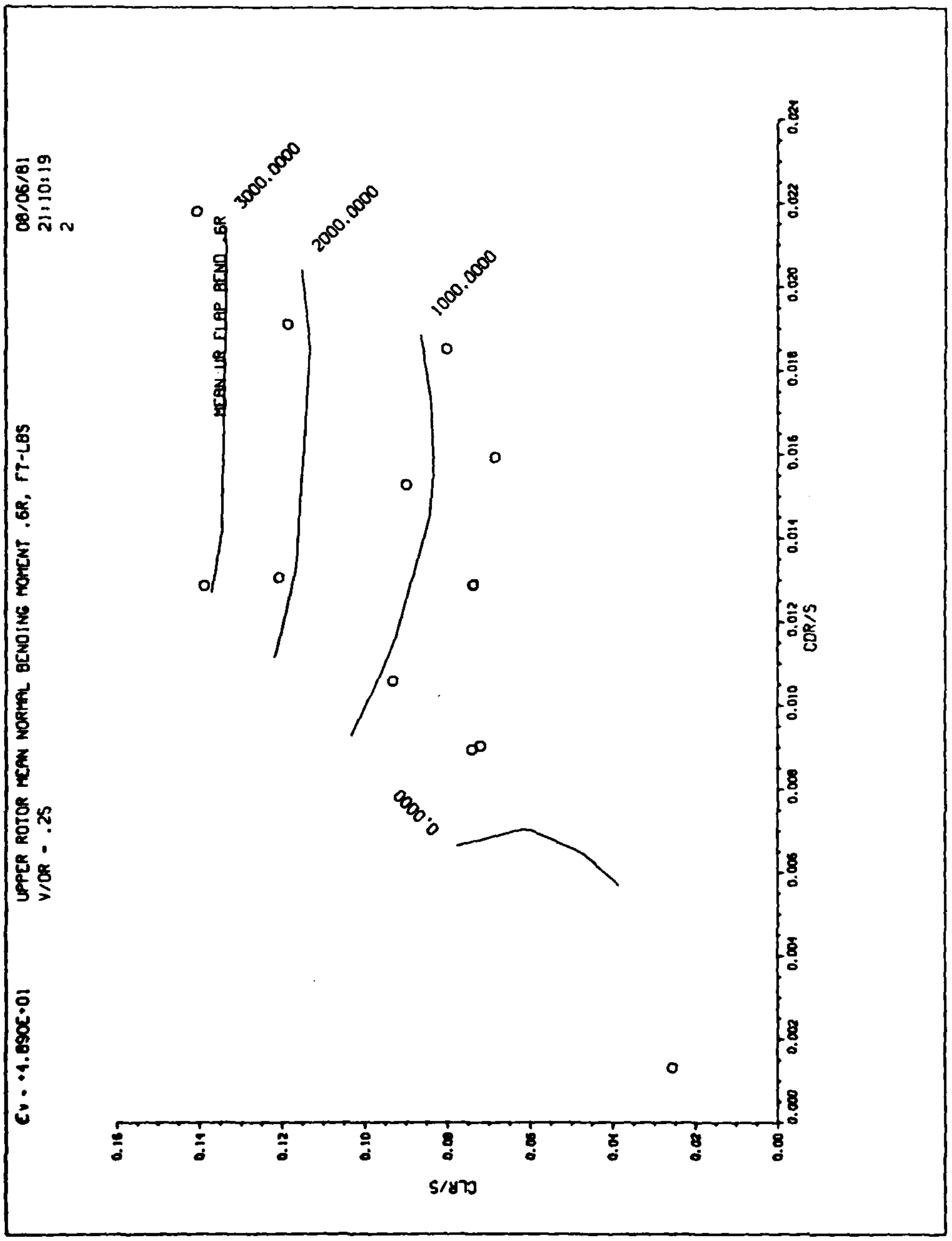
LOWER ROTOR OSC. NORMAL BENDING MOMENT .3R, FT-LBS
V/OR = .25
08/06/81
21:13:52
1
OSC LR FLAP BEND .3R
2000.0000
1000.0000
CDP/S
CLR/S
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16



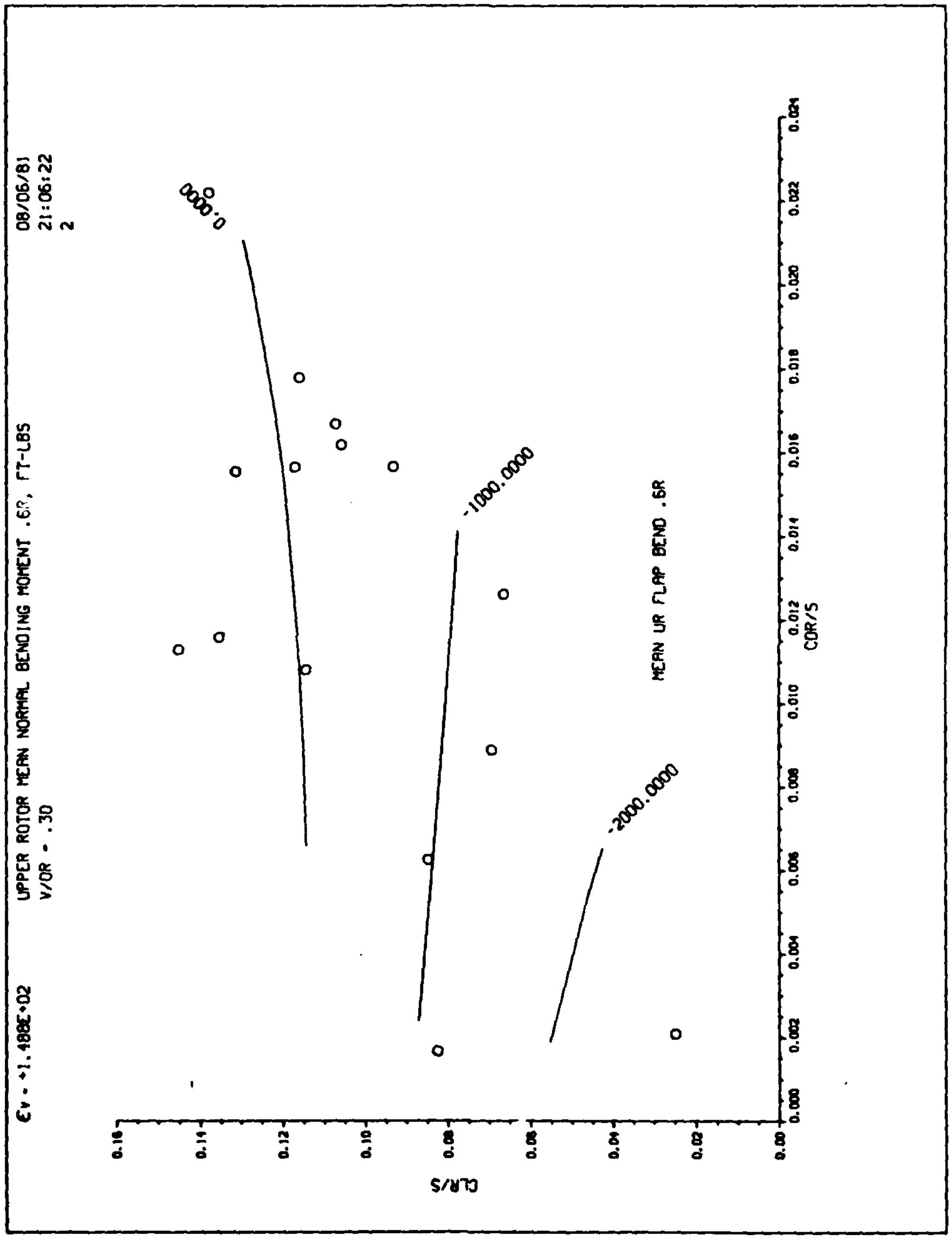
LOWER ROTOR OSC. NORMAL BENDING MOMENT .3R, FT-LBS
V/OR = .30
€V = +1.122E+02
08/06/81
21:17:28
2
4000.0000
3000.0000
2000.0000
1000.0000
OSC LR FLAP BEND .3R
CDR/S
CLR/S

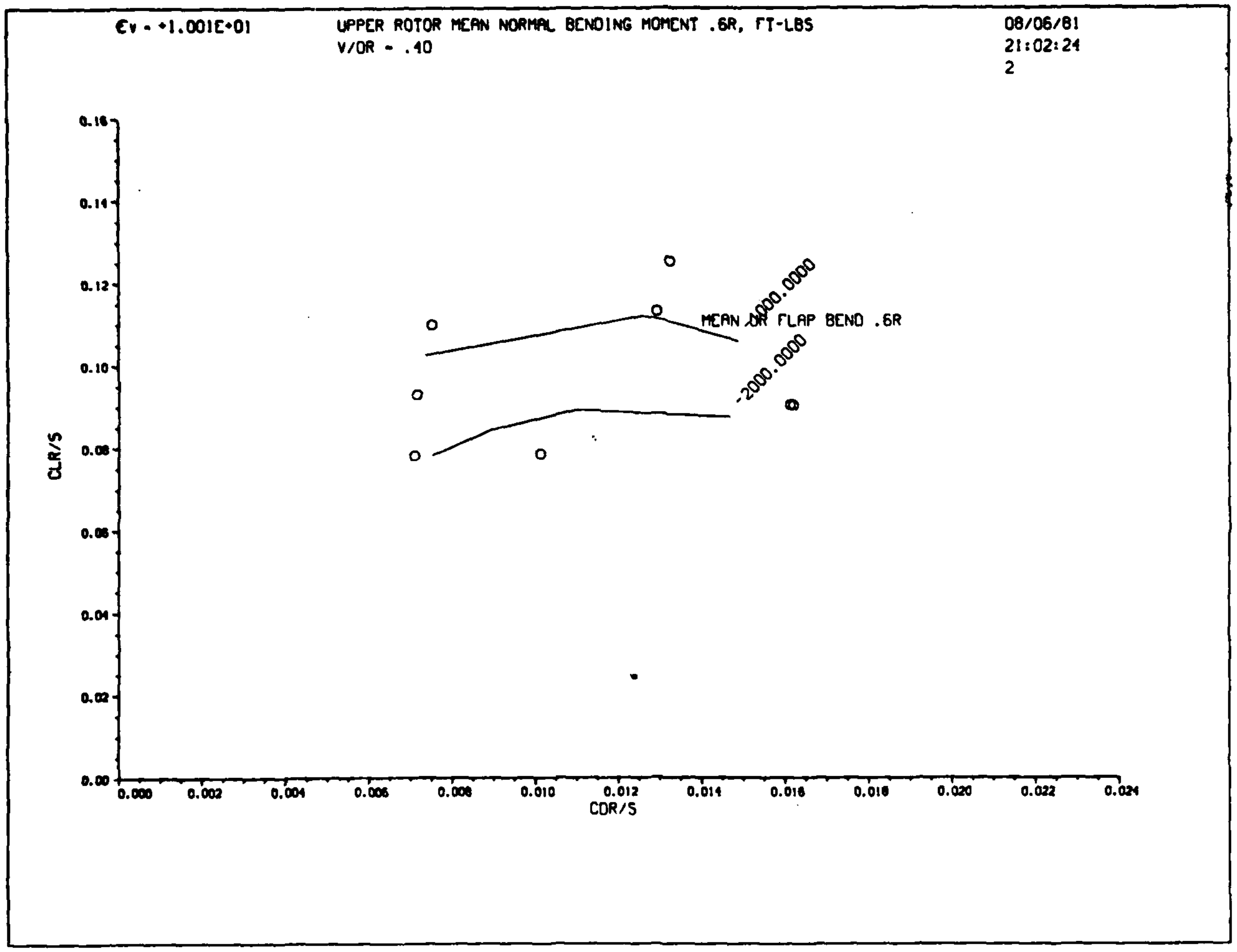


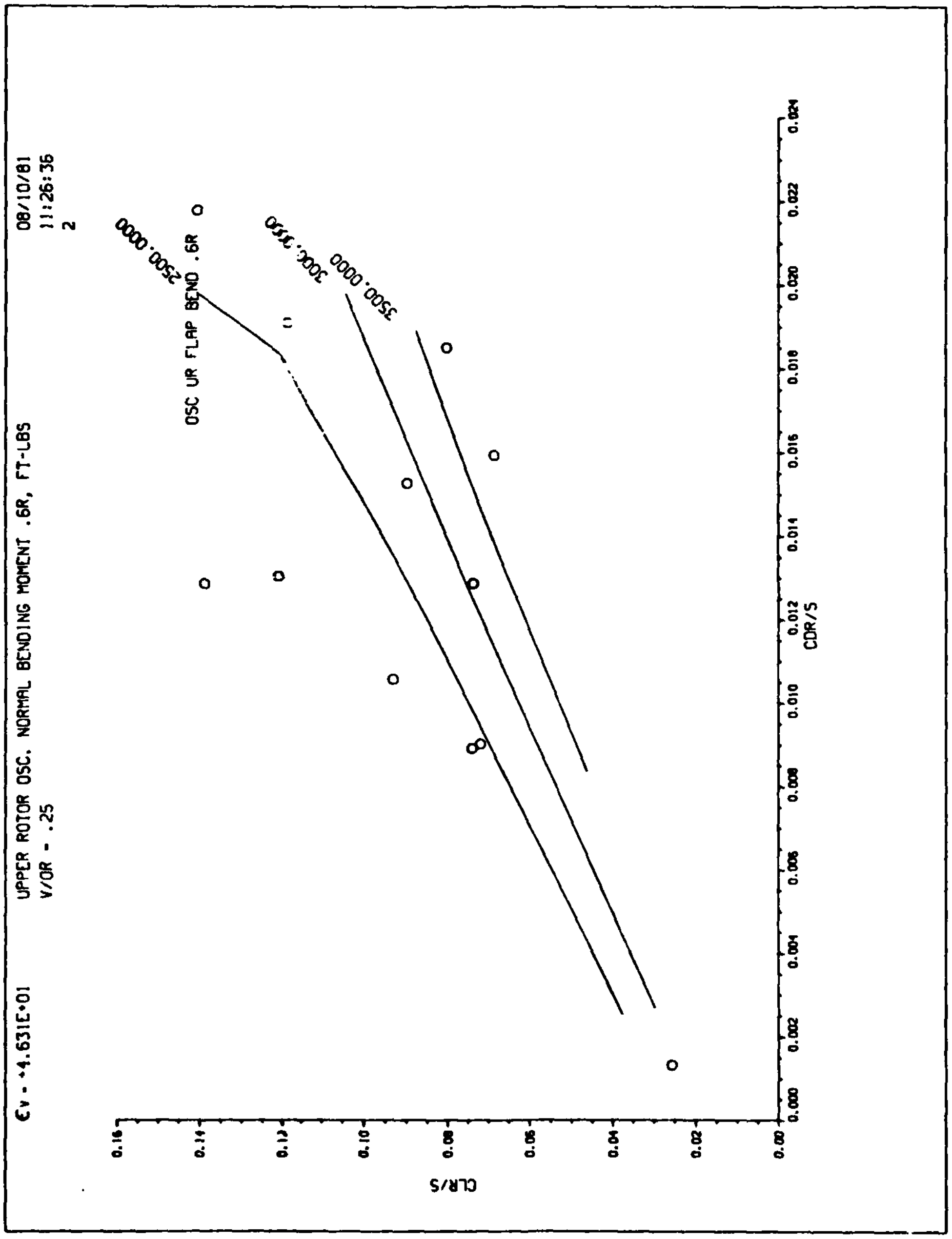
€v = +3.404E+01
LOWER ROTOR OSC. NORMAL BENDING MOMENT .3R, FT-LBS
V/OR = .40
08/06/81
21:20:43
2
OSC LB FLAP BEND .3R
3000.0000
2000.0000
CLR/S
CDR/S
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024

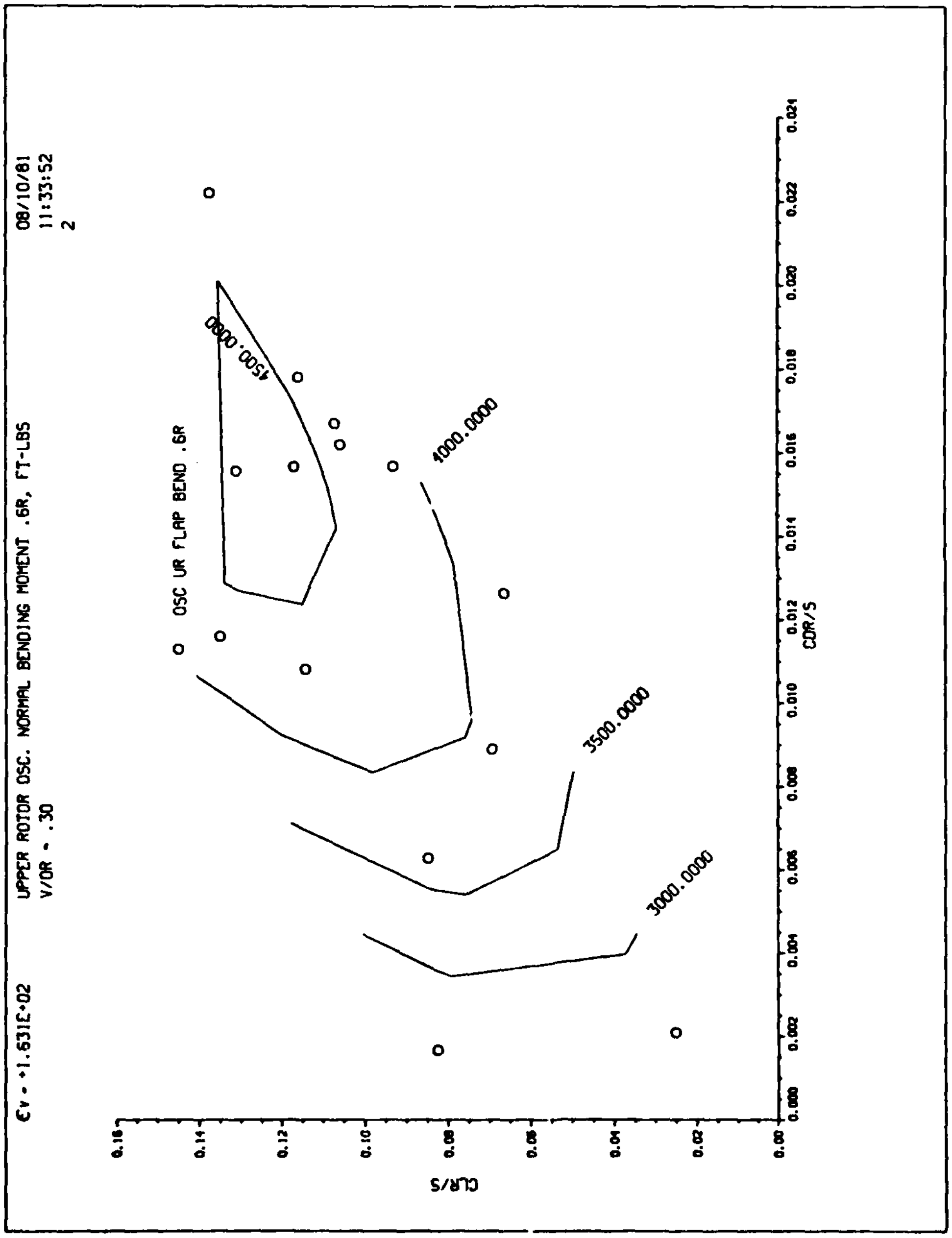


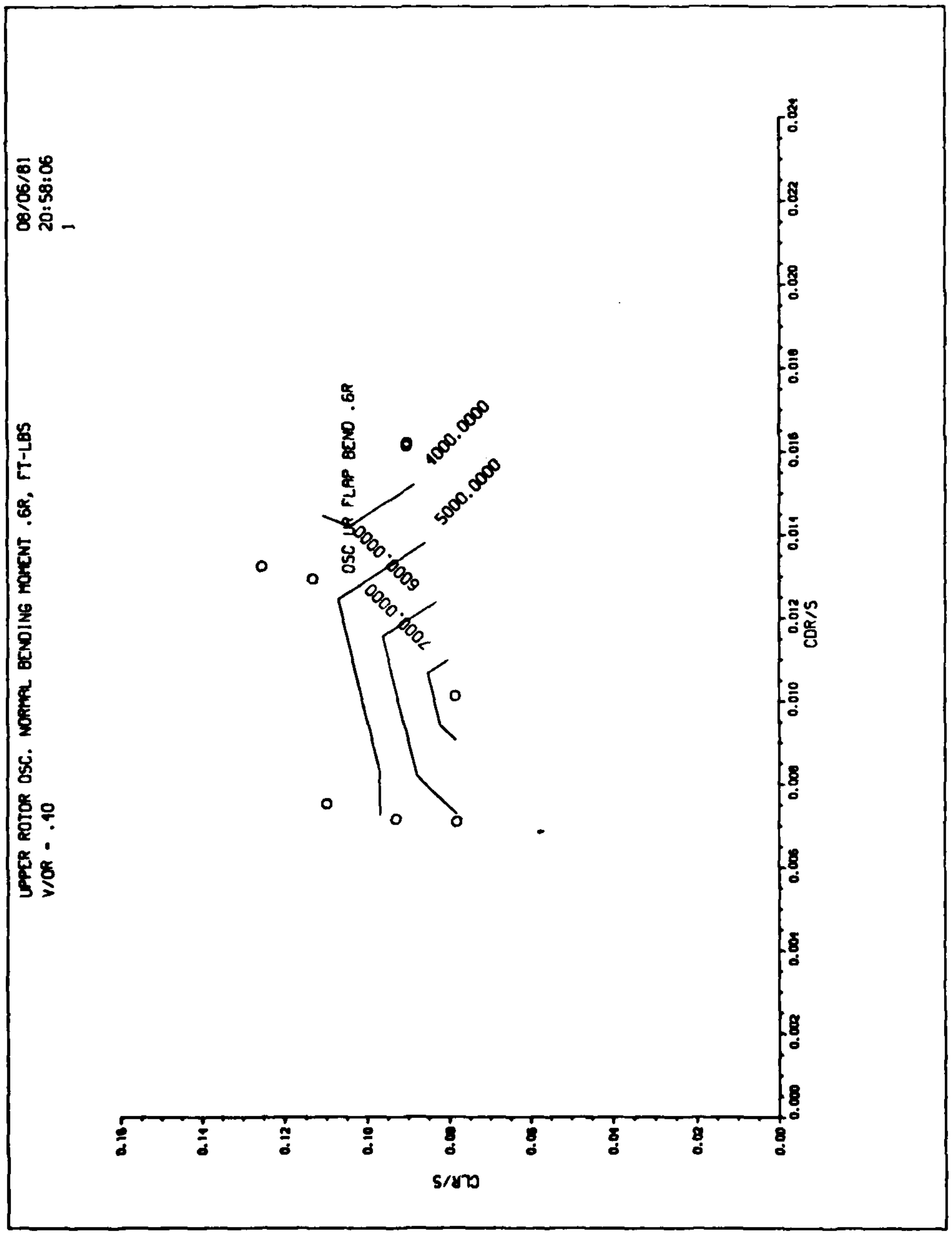
UPPER ROTOR MEAN NORMAL BENDING MOMENT .6R, FT-LBS
V/ΩR = .25
08/06/81
21:10:19
2
MEAN UR FLAP BEND .6R
3000.0000
2000.0000
1000.0000
0.0000
CDR/S
CLR/S

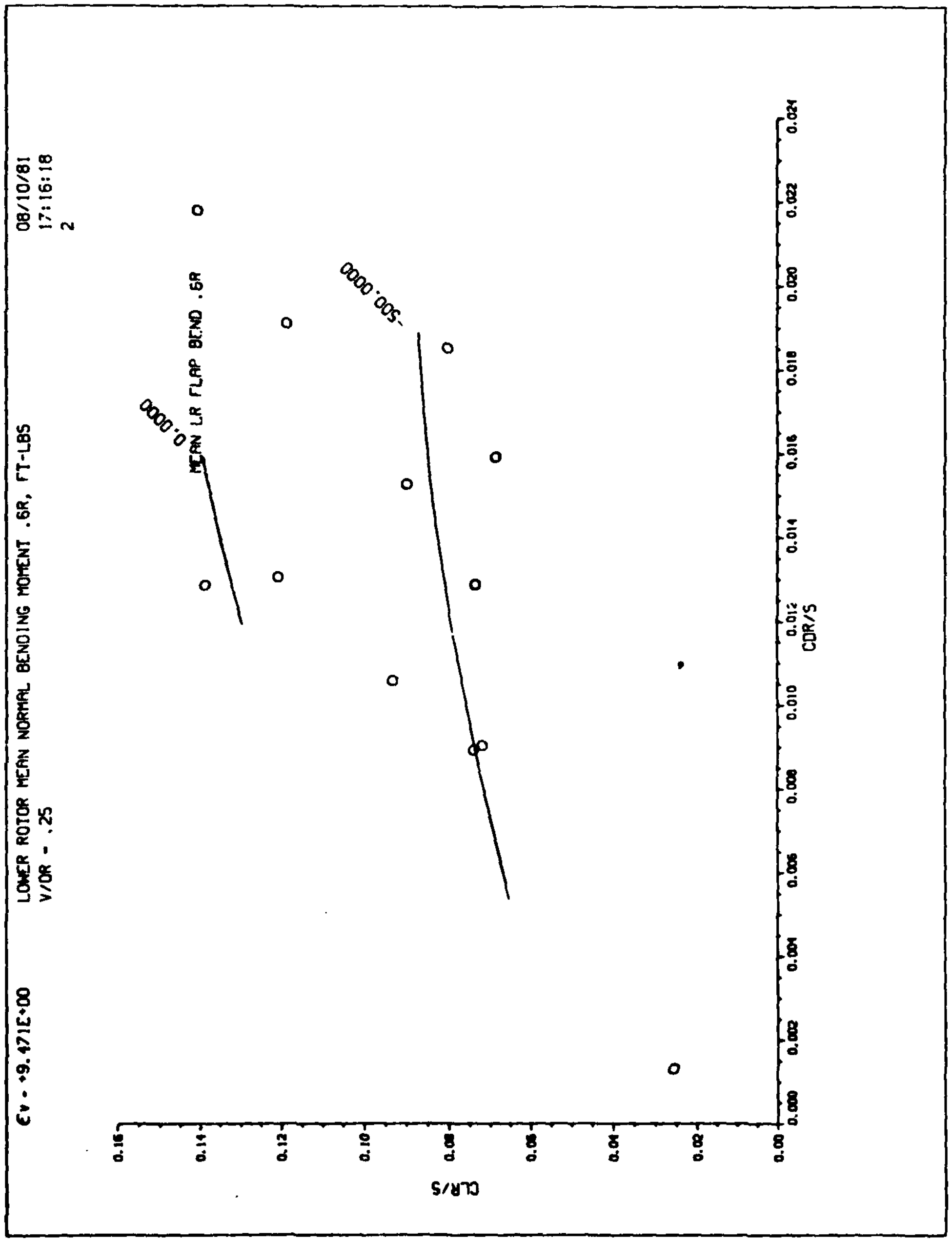

UPPER ROTOR MEAN NORMAL BENDING MOMENT .6R, FT-LBS
V/OR = .30
08/06/81
21:06:22
2
0.0000
-1000.0000
-2000.0000
MEAN UR FLAP BEND .6R
CDR/S
CLR/S

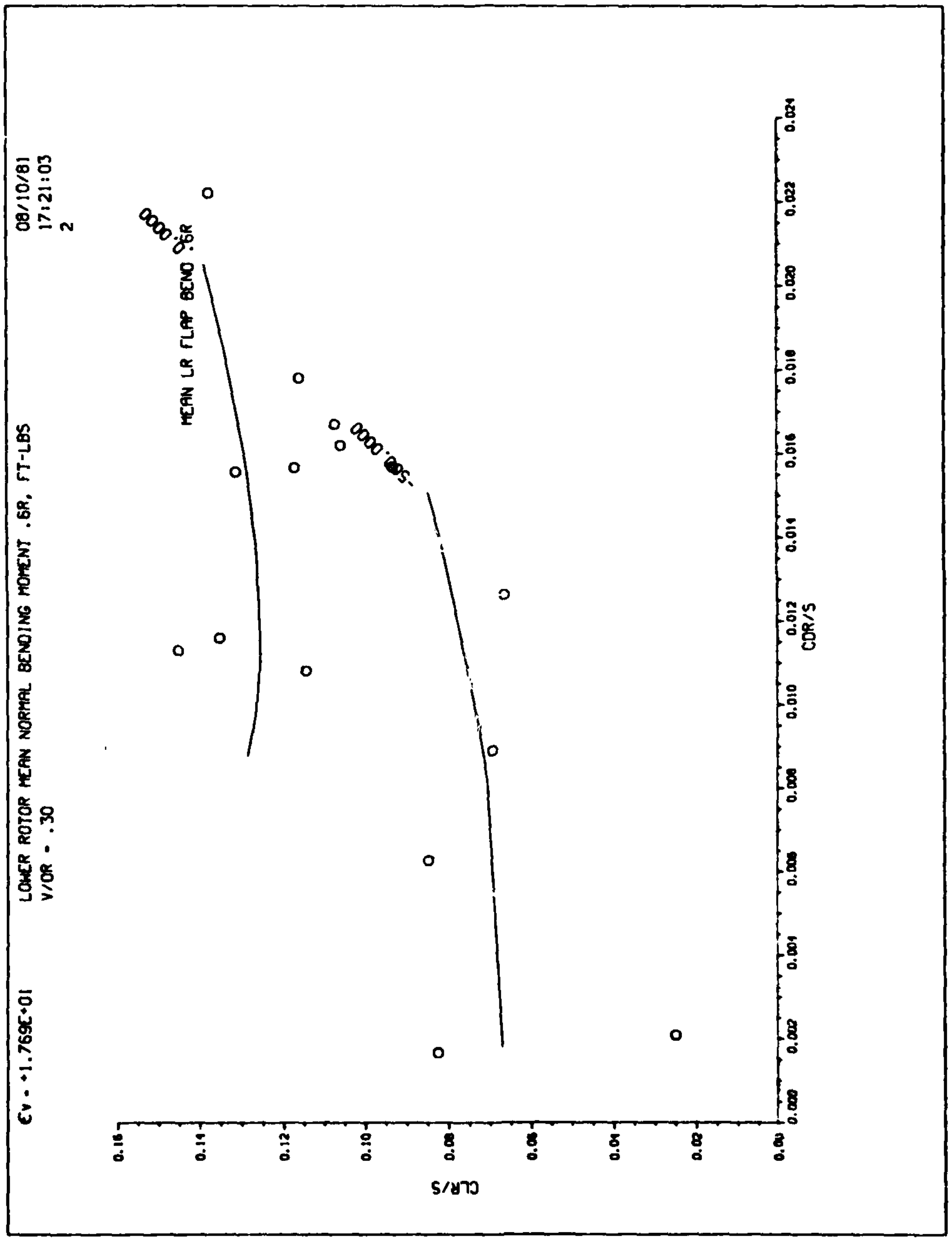

€v - +1.001E+01
UPPER ROTOR MEAN NORMAL BENDING MOMENT .6R, FT-LBS
V/OR - .40
08/06/81
21:02:24
2
MEAN UR FLAP BEND .6R
-2000.0000
CLR/S
CDR/S
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024


Єv = +4.631E+01
UPPER ROTOR OSC. NORMAL BENDING MOMENT .6R, FT-LBS
V/OR = .25
08/10/81
11:26:36
2
OSC UR FLAP BEND .6R
2500.0000
3500.0000
CLR/S
CDR/S
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024

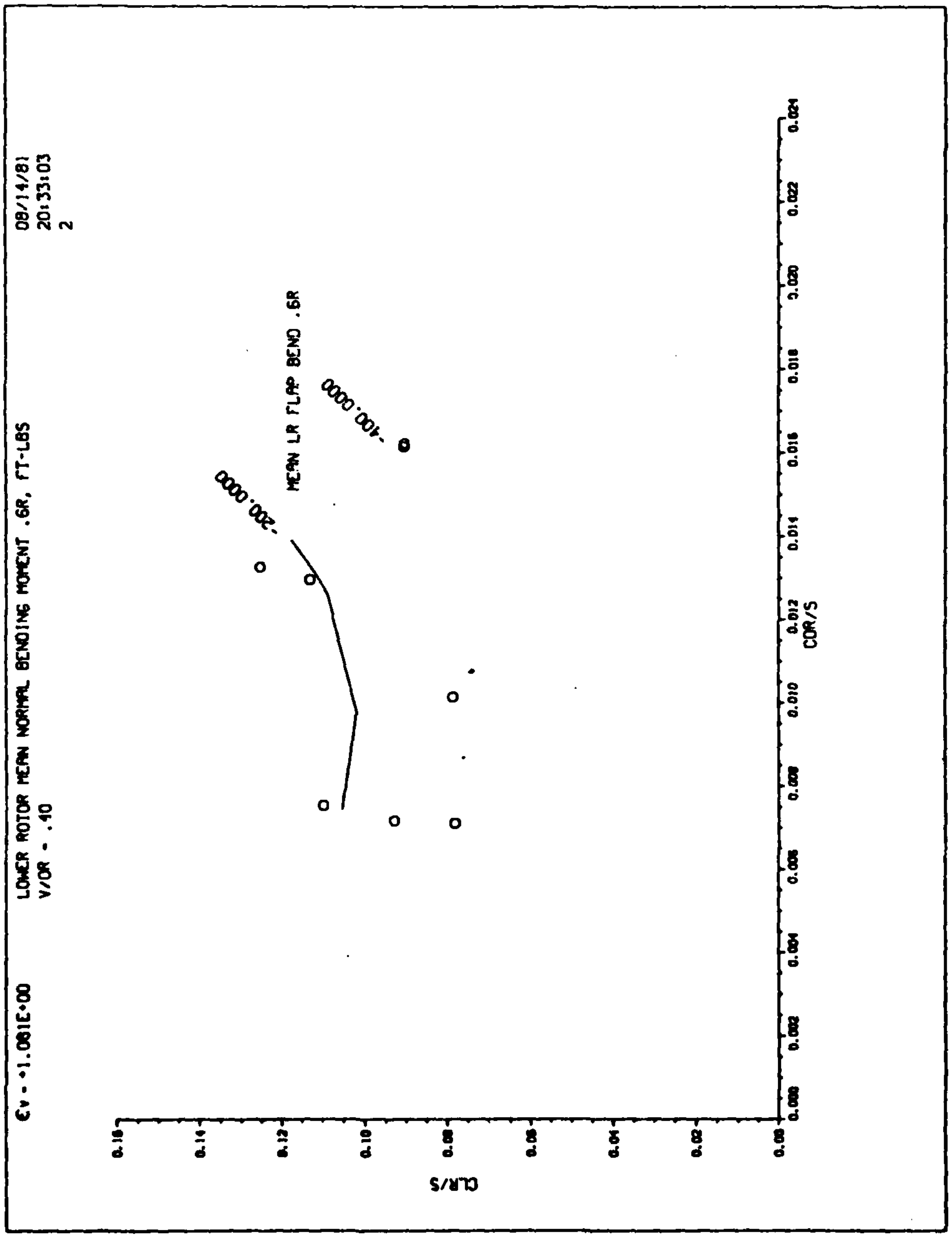

€v = +1.631E+02
UPPER ROTOR OSC. NORMAL BENDING MOMENT .6R, FT-LBS
V/OR = .30
08/10/81
11:33:52
2
OSC UR FLAP BEND .6R
4500.0000
4000.0000
3500.0000
3000.0000
CLR/S
CDR/S
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024

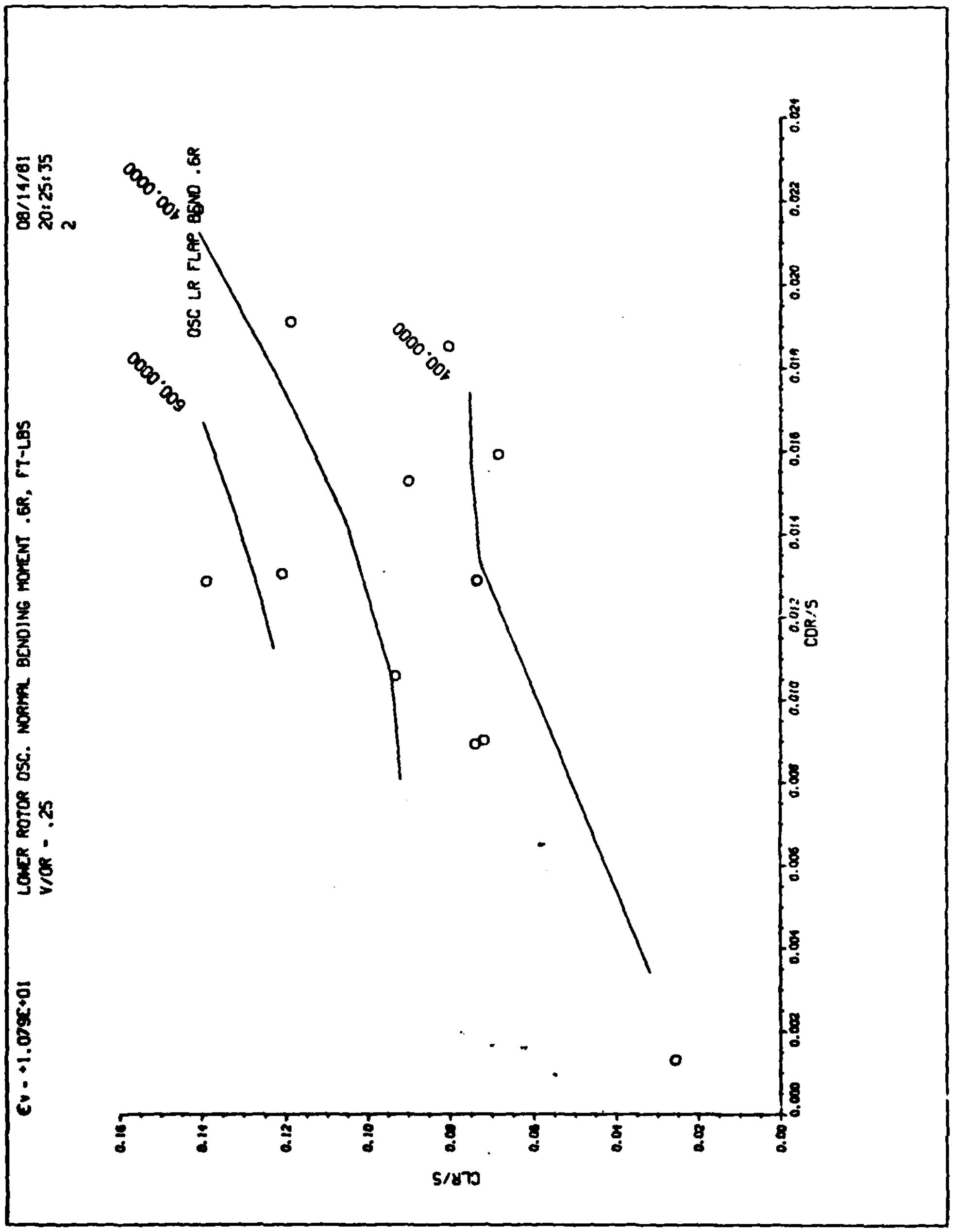

UPPER ROTOR OSC. NORMAL BENDING MOMENT .6R, FT-LBS
V/OR - .40
08/06/81
20:58:06
1
OSC UR FLAP BEND .6R
4000.0000
5000.0000
6000.0000
7000.0000
CDR/S
CLR/S


εv = +9.471E+00
LOWER ROTOR MEAN NORMAL BENDING MOMENT .6R, FT-LBS
V/ΩR = .25
08/10/81
17:16:18
2
MEAN LR FLAP BEND .6R
0.0000
-500.0000
CLR/S
CDR/S

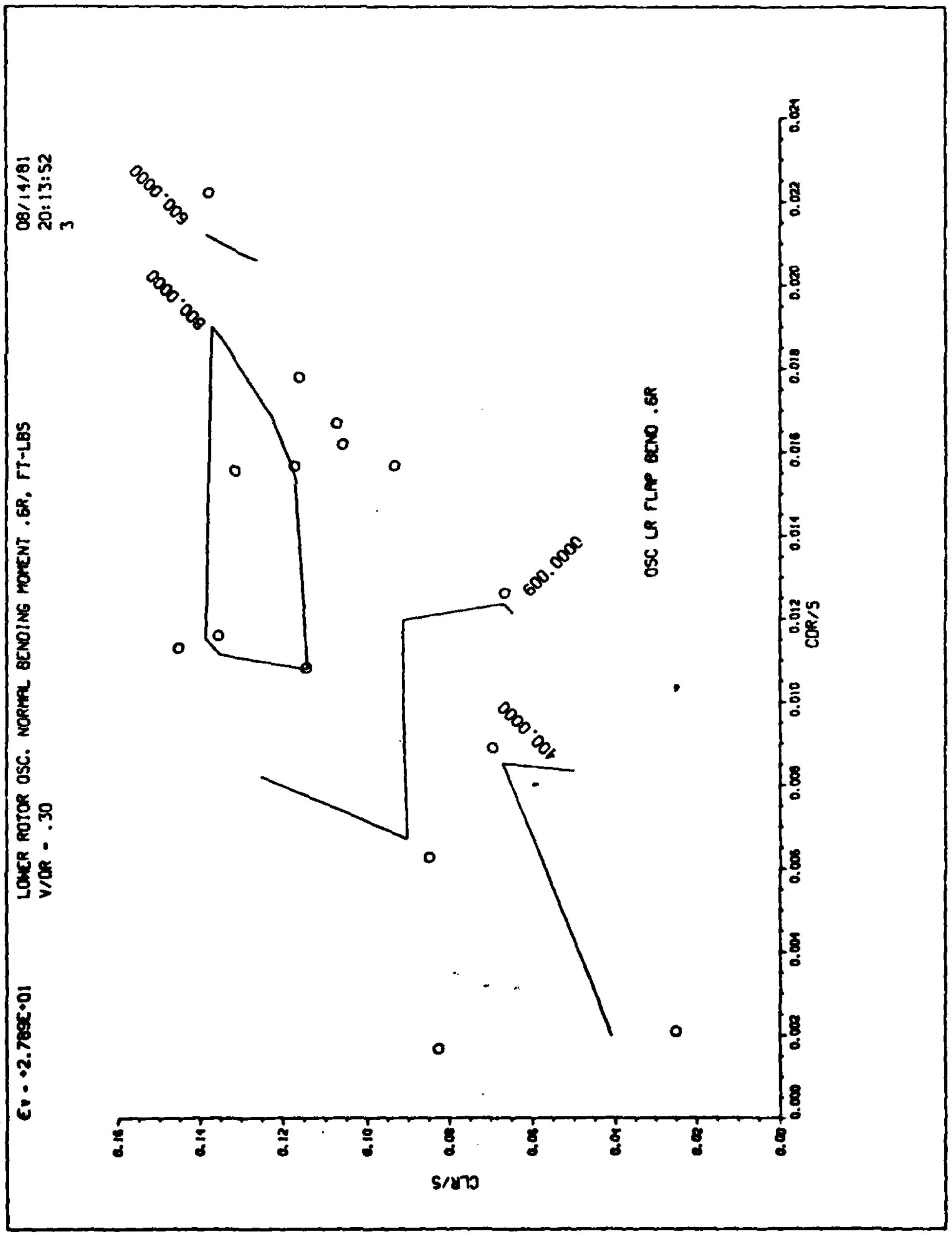


Cv = +1.769E+01
LOWER ROTOR MEAN NORMAL BENDING MOMENT .6R, FT-LBS
V/ΩR = .30
08/10/81
17:21:03
2
MEAN LR FLAP BEND .6R
CLR/S
CDR/S
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024

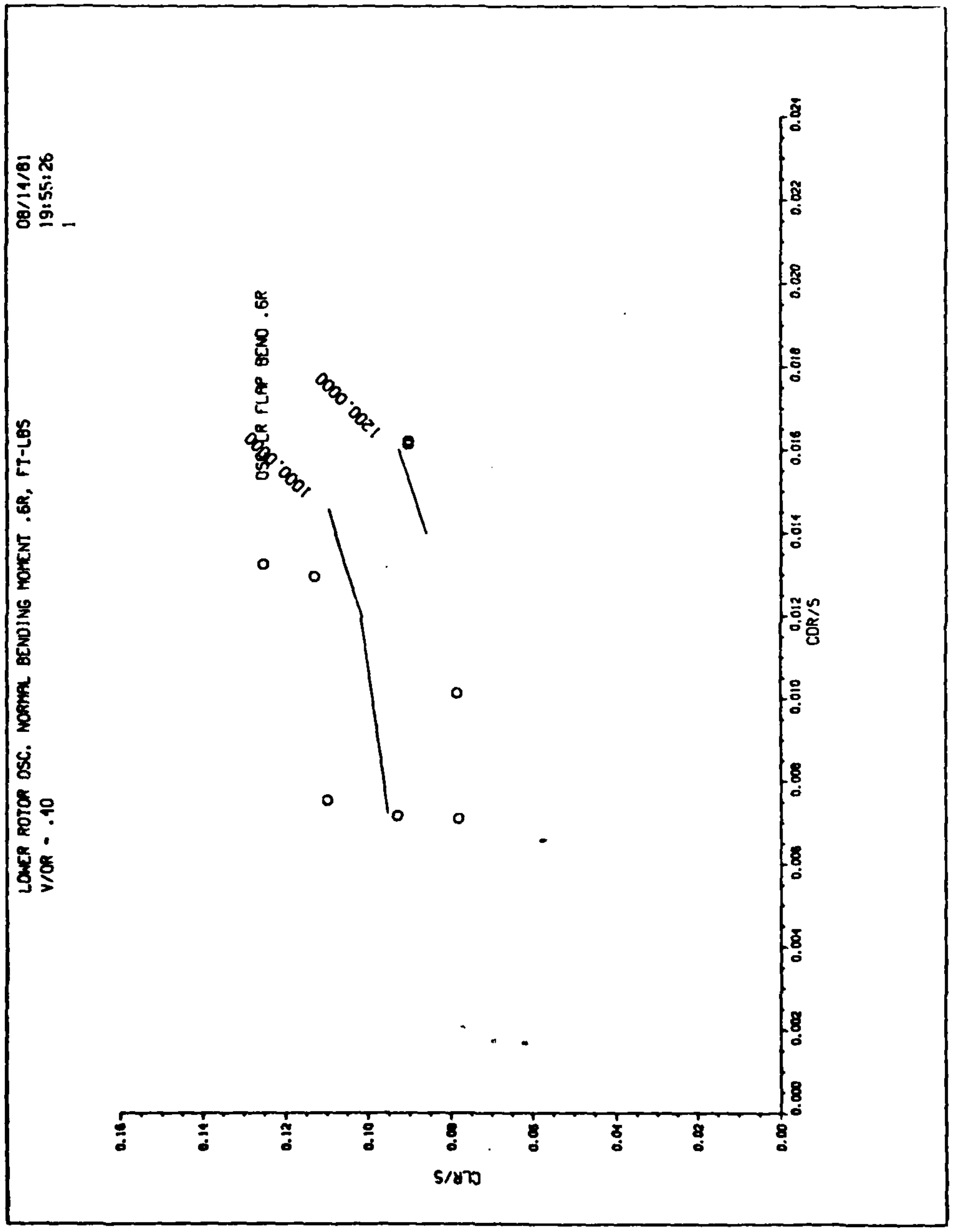

Ev = +1.081E+00
LOWER ROTOR MEAN NORMAL BENDING MOMENT .6R, FT-LBS
V/ΩR = .40
08/14/81
20:33:03
2
MEAN LR FLAP BEND .6R
-100.0000
-200.0000
CLR/S
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
CDR/S
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024



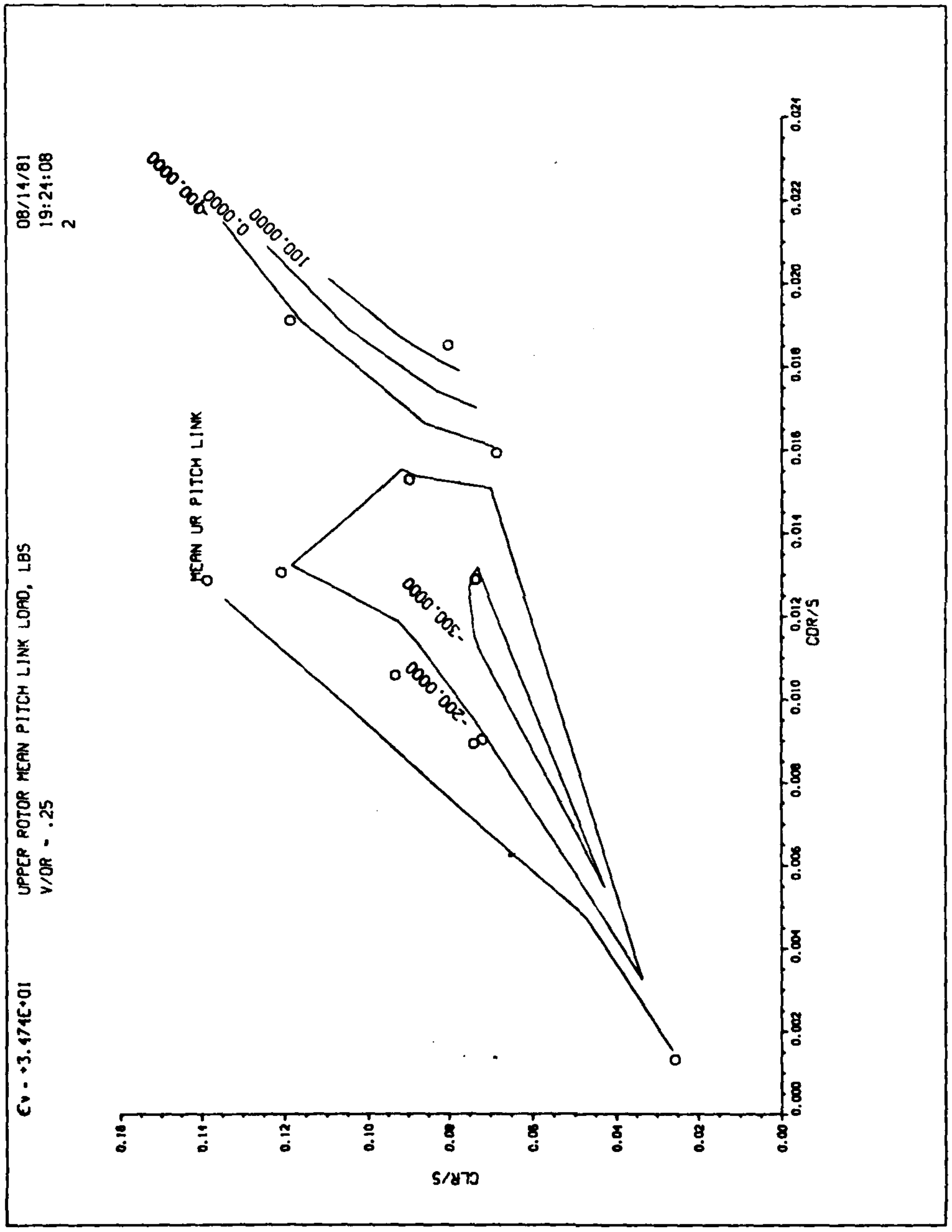
€v = +1.0796E+01
LOWER ROTOR OSC. NORMAL BENDING MOMENT .6R, FT-LBS
V/ΩR = .25
08/14/81
20:25:35
2
OSC LR FLAP BEND .6R
400.0000
600.0000
400.0000
CLR/S
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
CDR/S
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024



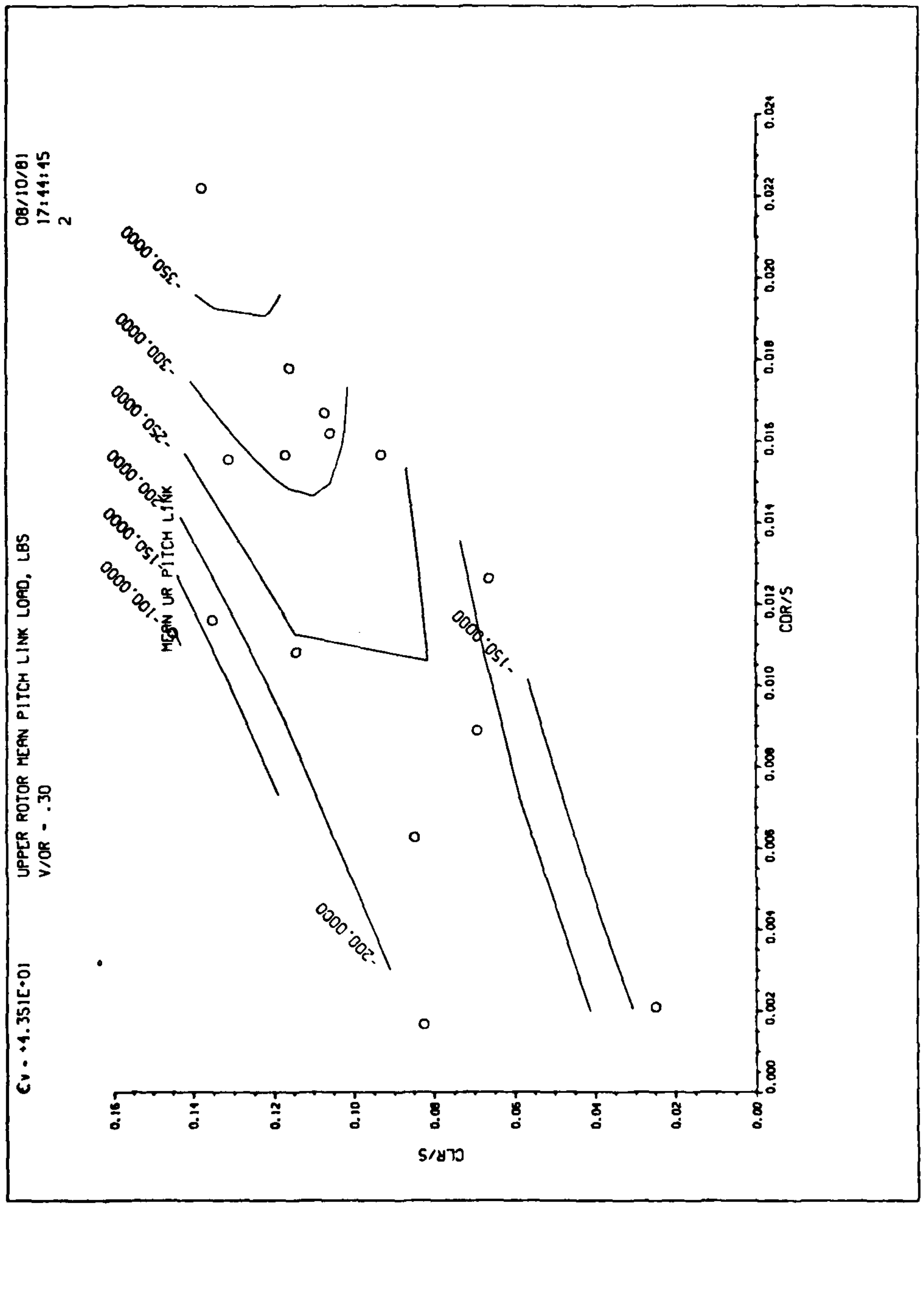
Єv = +2.789E+01
LOWER ROTOR OSC. NORMAL BENDING MOMENT .6R, FT-LBS
V/OR = .30
08/14/81
20:13:52
3
600.0000
800.0000
600.0000
400.0000
OSC LR FLAP BEND .6R
CDR/S
CLR/S



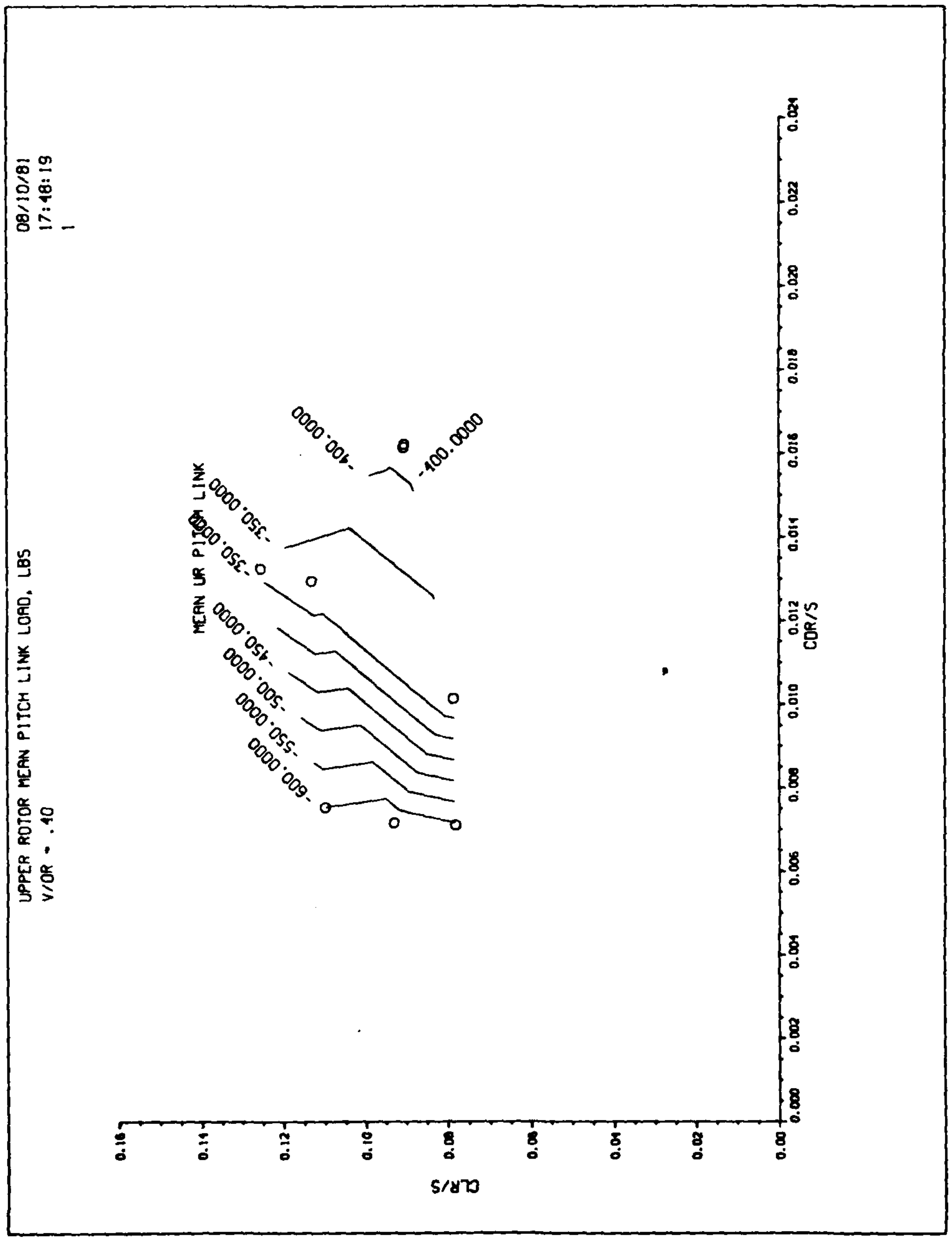
LOWER ROTOR OSC. NORMAL BENDING MOMENT .6R, FT-LBS
V/OR - .40
08/14/81
19:55:26
1
OSC LR FLAP BEND .6R
1000.0000
1200.0000
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
CLR/S
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024
CDR/S

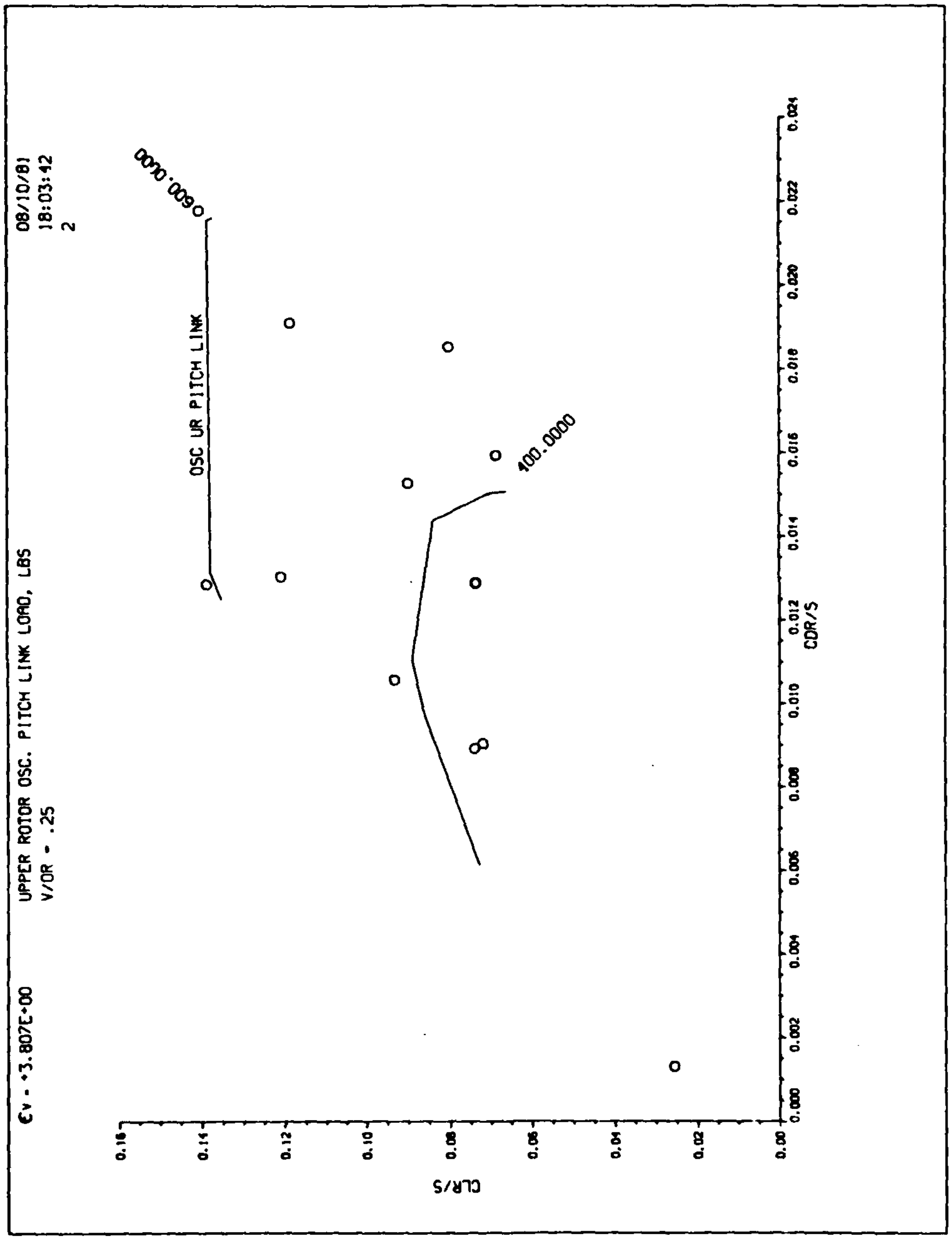


Cv = +3.474E+01
UPPER ROTOR MEAN PITCH LINK LOAD, LBS
V/OR = .25
08/14/81
19:24:08
2
MEAN UR PITCH LINK
200.0000
0.0000
100.0000
-300.0000
-200.0000
CLR/S
CDR/S
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024

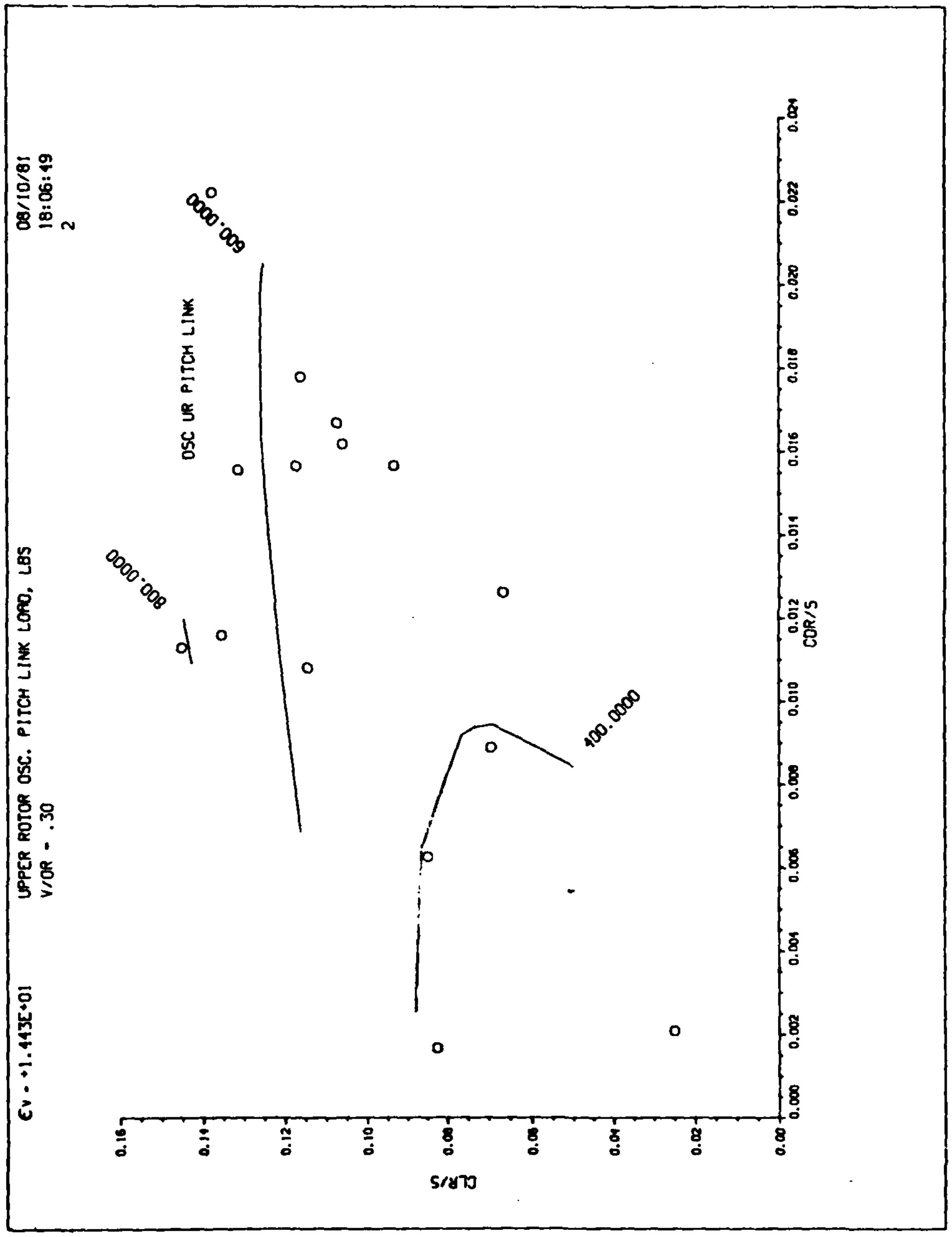


Cv = +4.351E-01
UPPER ROTOR MEAN PITCH LINK LOAD, LBS
V/OR = .30
08/10/81
17:44:45
2
MEAN UR PITCH LINK
-350.0000
-300.0000
-250.0000
-200.0000
-150.0000
-100.0000
CLR/S
CDR/S

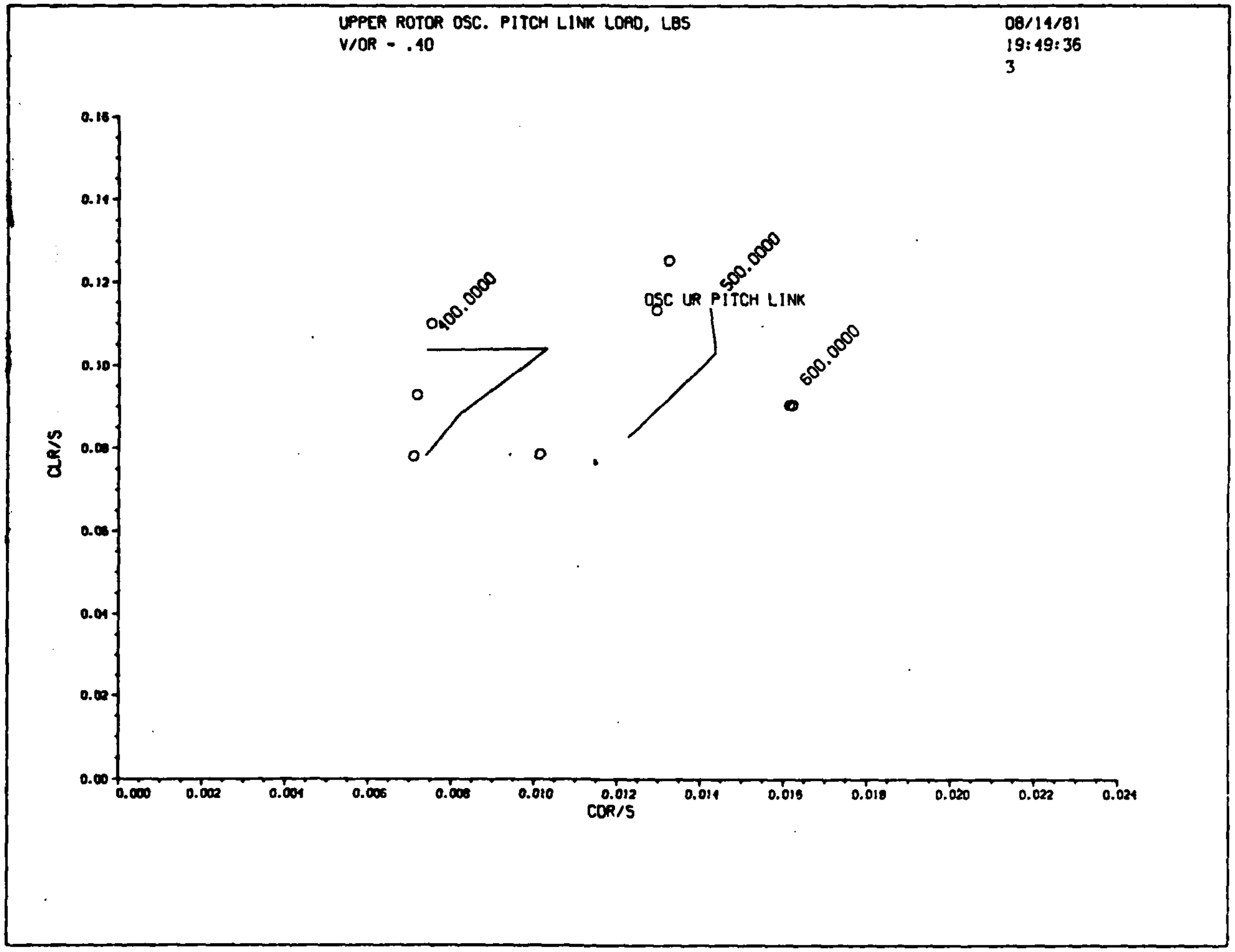

UPPER ROTOR MEAN PITCH LINK LOAD, LBS
V/OR = .40
08/10/81
17:48:19
1
MEAN UR PITCH LINK
-350.0000
-350.0000
-400.0000
-400.0000
-450.0000
-500.0000
-550.0000
-600.0000
CDR/S
CLR/S



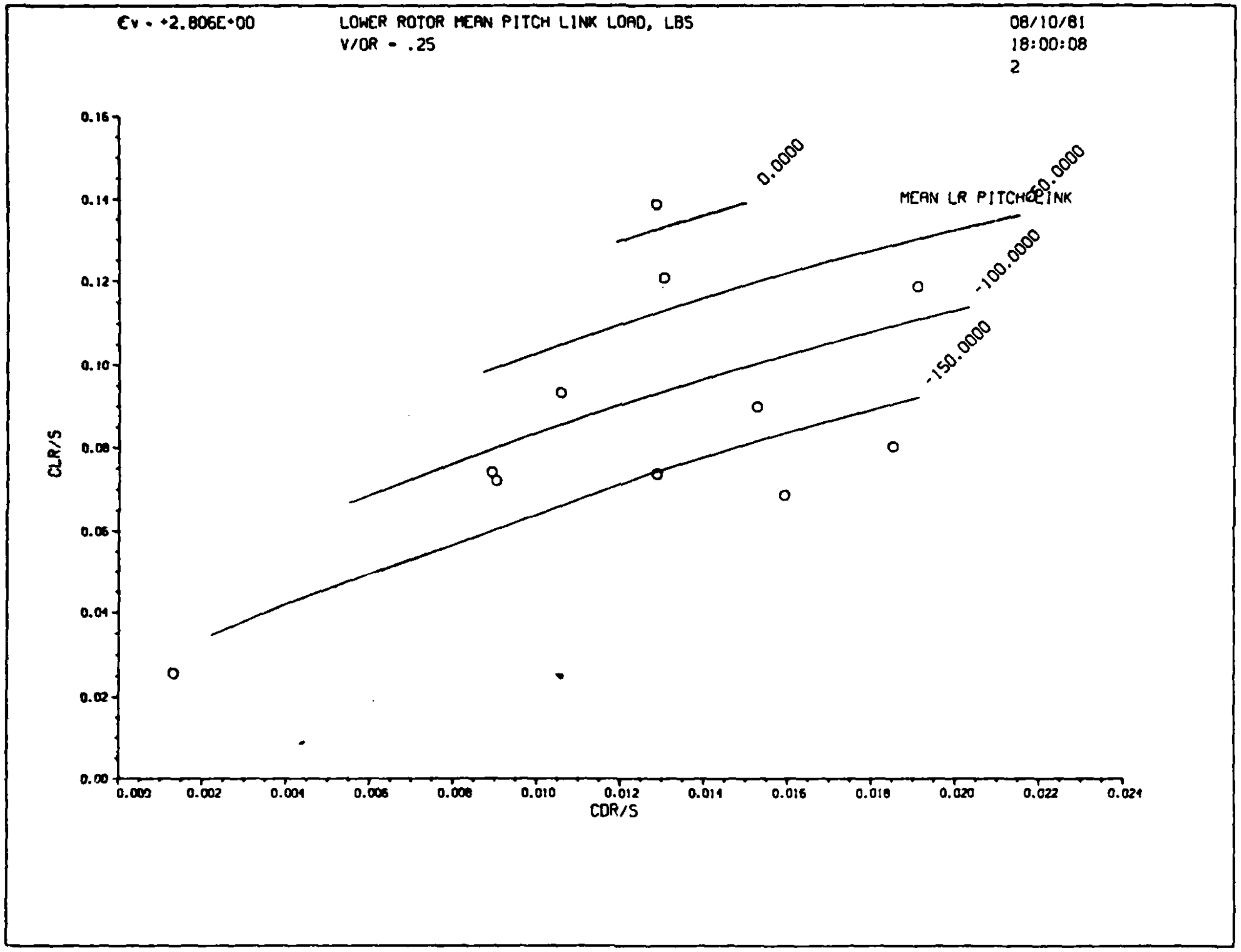
Cv = +3.807E+00
UPPER ROTOR OSC. PITCH LINK LOAD, LBS
V/OR = .25
08/10/81
18:03:42
2
OSC UR PITCH LINK
600.0000
400.0000
CDR/S
CLR/S
0.000 0.002 0.004 0.006 0.008 0.010 0.012 0.014 0.016 0.018 0.020 0.022 0.024
0.00 0.02 0.04 0.06 0.08 0.10 0.12 0.14 0.16



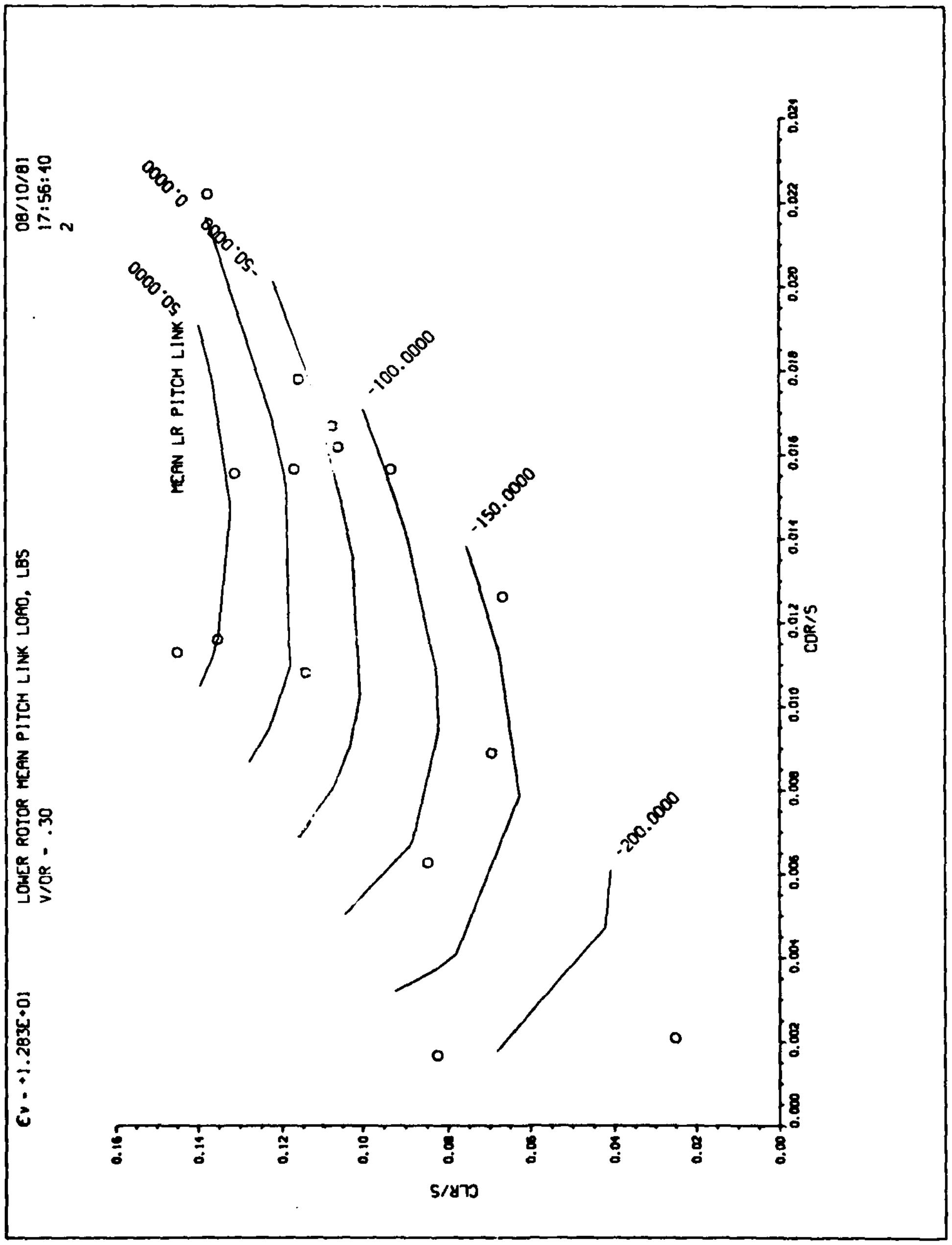
Cv = +1.443E+01
UPPER ROTOR OSC. PITCH LINK LOAD, LBS
V/OR = .30
08/10/81
18:06:49
2
OSC UR PITCH LINK
600.0000
800.0000
400.0000
CDR/S
CLR/S



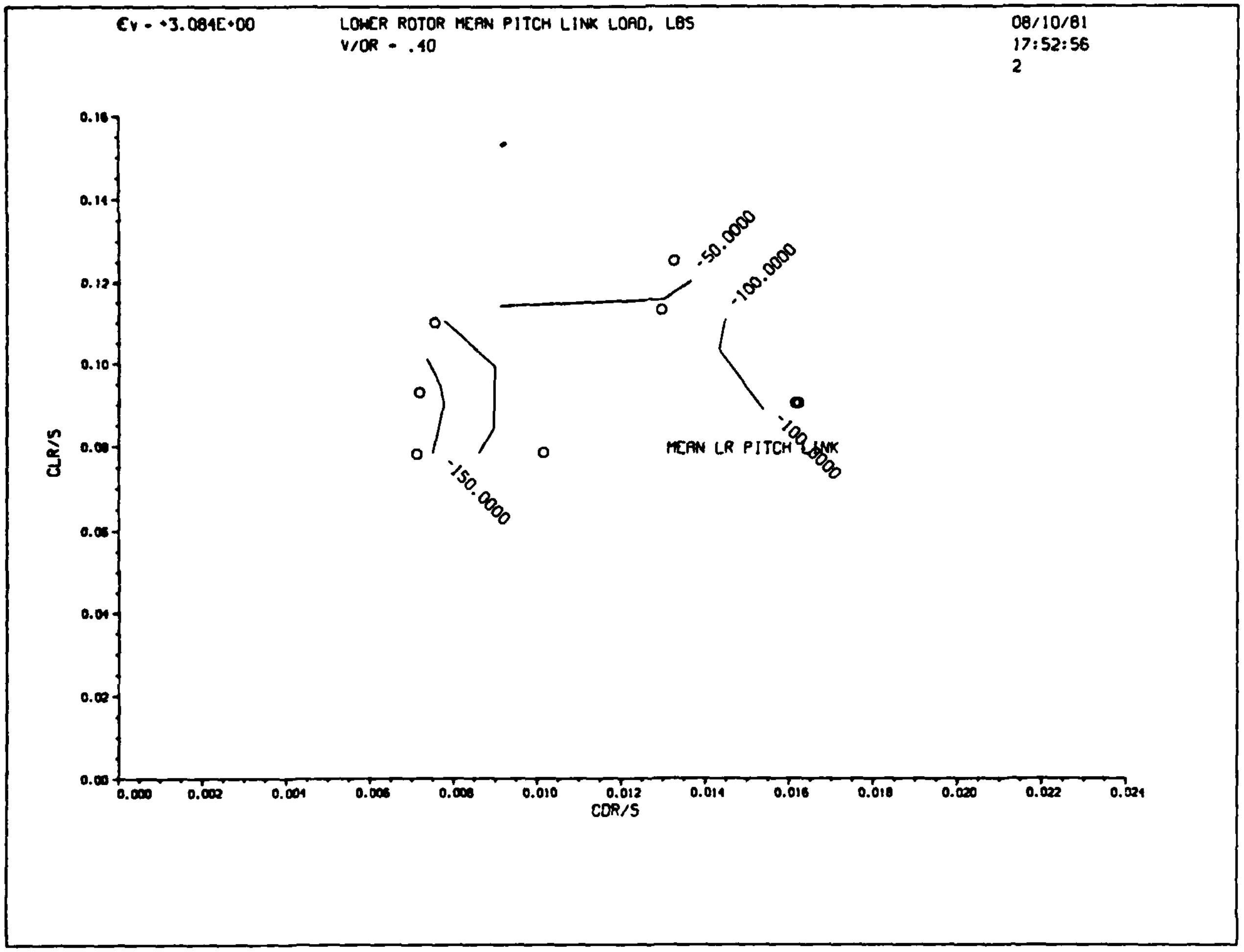
UPPER ROTOR OSC. PITCH LINK LOAD, LBS
V/OR - .40
08/14/81
19:49:36
3
400.0000
500.0000
600.0000
OSC UR PITCH LINK
CLR/S
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024
COR/S

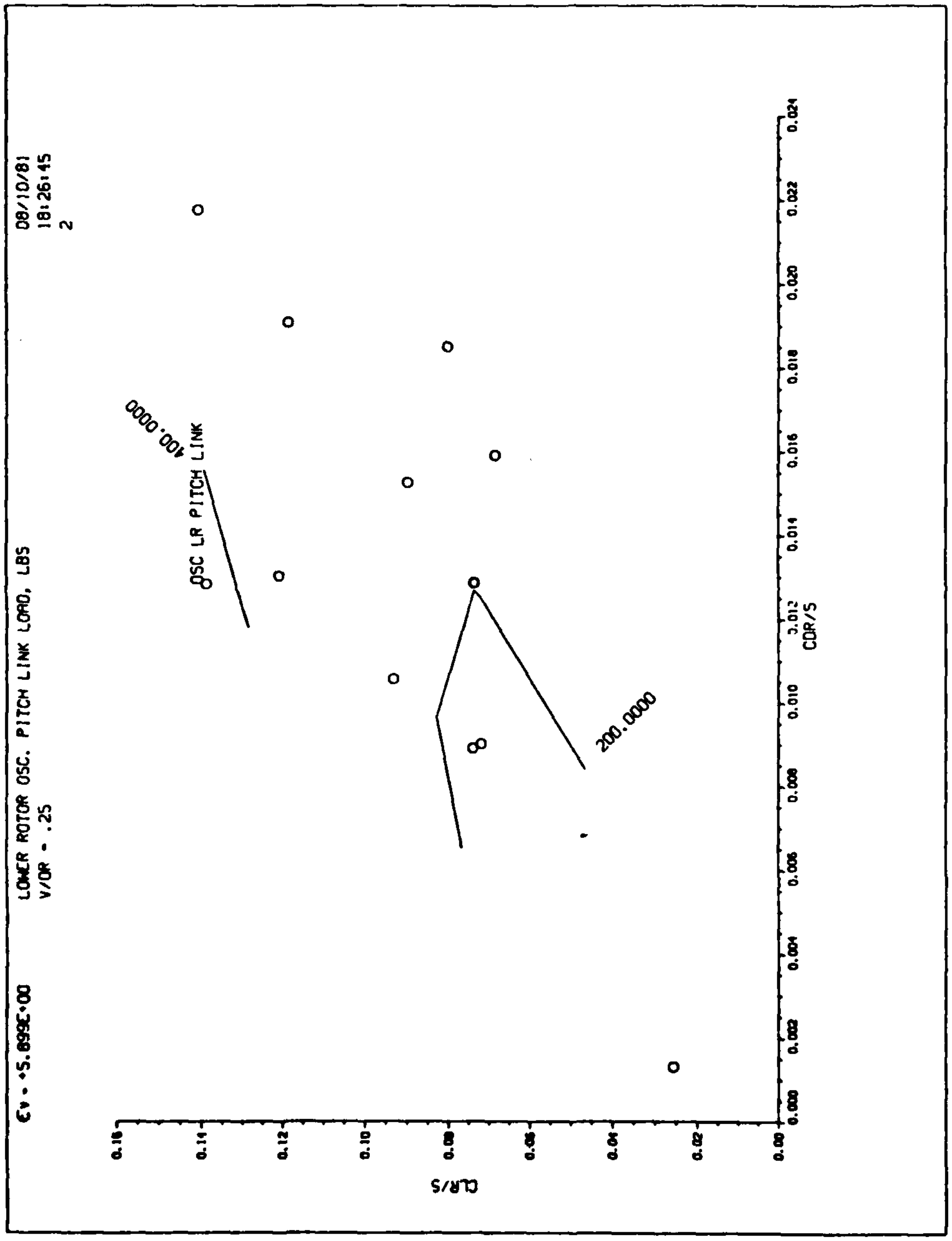


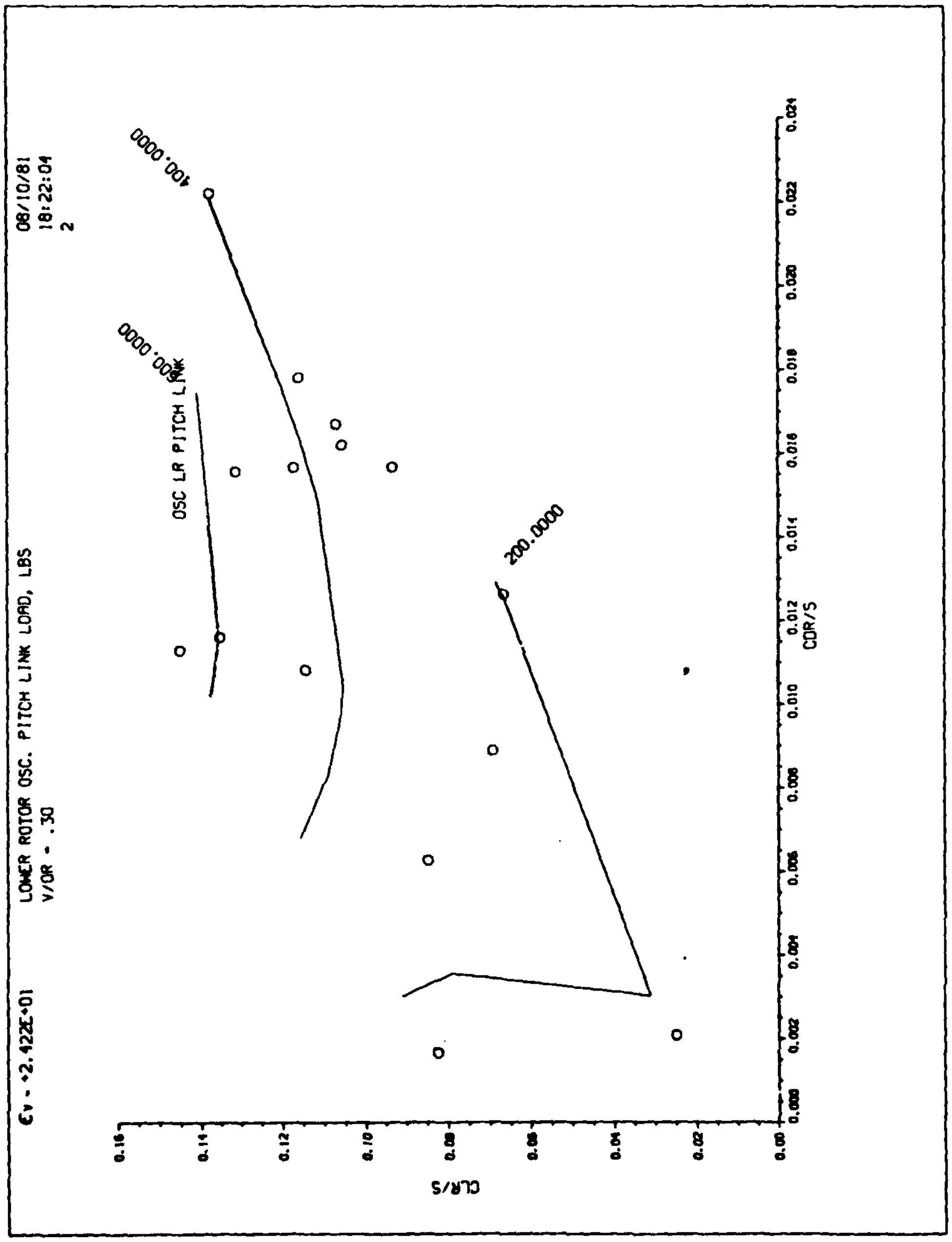
€v - +2.806E+00
LOWER ROTOR MEAN PITCH LINK LOAD, LBS
V/OR - .25
08/10/81
18:00:08
2
MEAN LR PITCH LINK
0.0000
-50.0000
-100.0000
-150.0000
CLR/S
CDR/S
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024



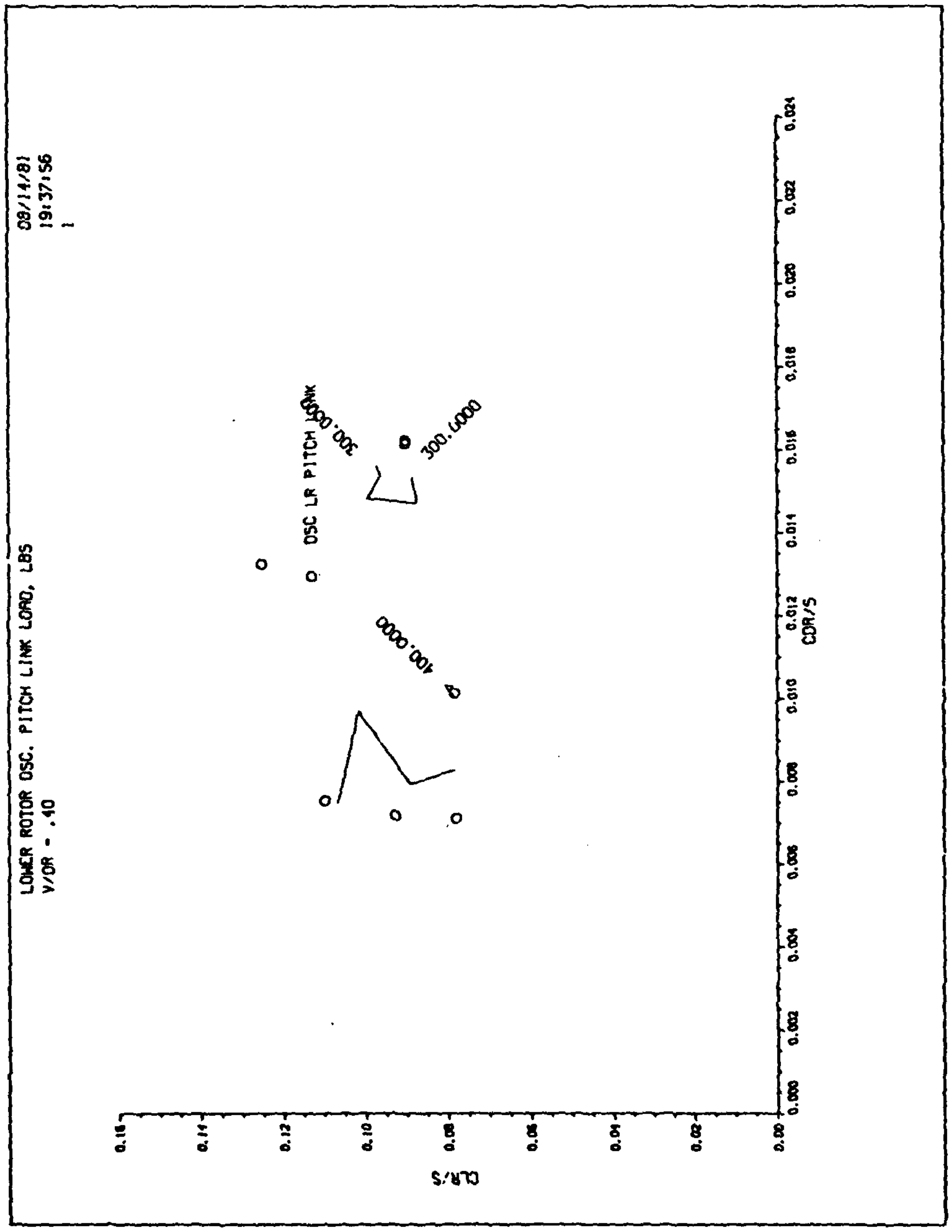
LOWER ROTOR MEAN PITCH LINK LOAD, LBS
V/OR - .30
€v - +1.283E+01
08/10/81
17:56:40
2
MEAN LR PITCH LINK
0.0000
50.0000
-50.0000
-100.0000
-150.0000
-200.0000
CLR/S
CDR/S
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024


Єv - +3.084E+00
LOWER ROTOR MEAN PITCH LINK LOAD, LBS
V/ΩR - .40
08/10/81
17:52:56
2
CLR/S
CDR/S
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024
-50.0000
-100.0000
-150.0000
-100.0000
MEAN LR PITCH LINK


CV = +5.899E+00
LOWER ROTOR OSC. PITCH LINK LOAD, LBS
V/OR = .25
08/10/81
18:26:45
2
OSC LR PITCH LINK
100.0000
200.0000
CDR/S
CLR/S



Cv - +2.422E+01
LOWER ROTOR OSC. PITCH LINK LOAD, LBS
V/OR - .30
08/10/81
18:22:04
2
OSC LR PITCH LINK
100.0000
300.0000
400.0000
200.0000
CDR/S
CLR/S
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16



LOWER ROTOR OSC. PITCH LINK LOAD, LBS
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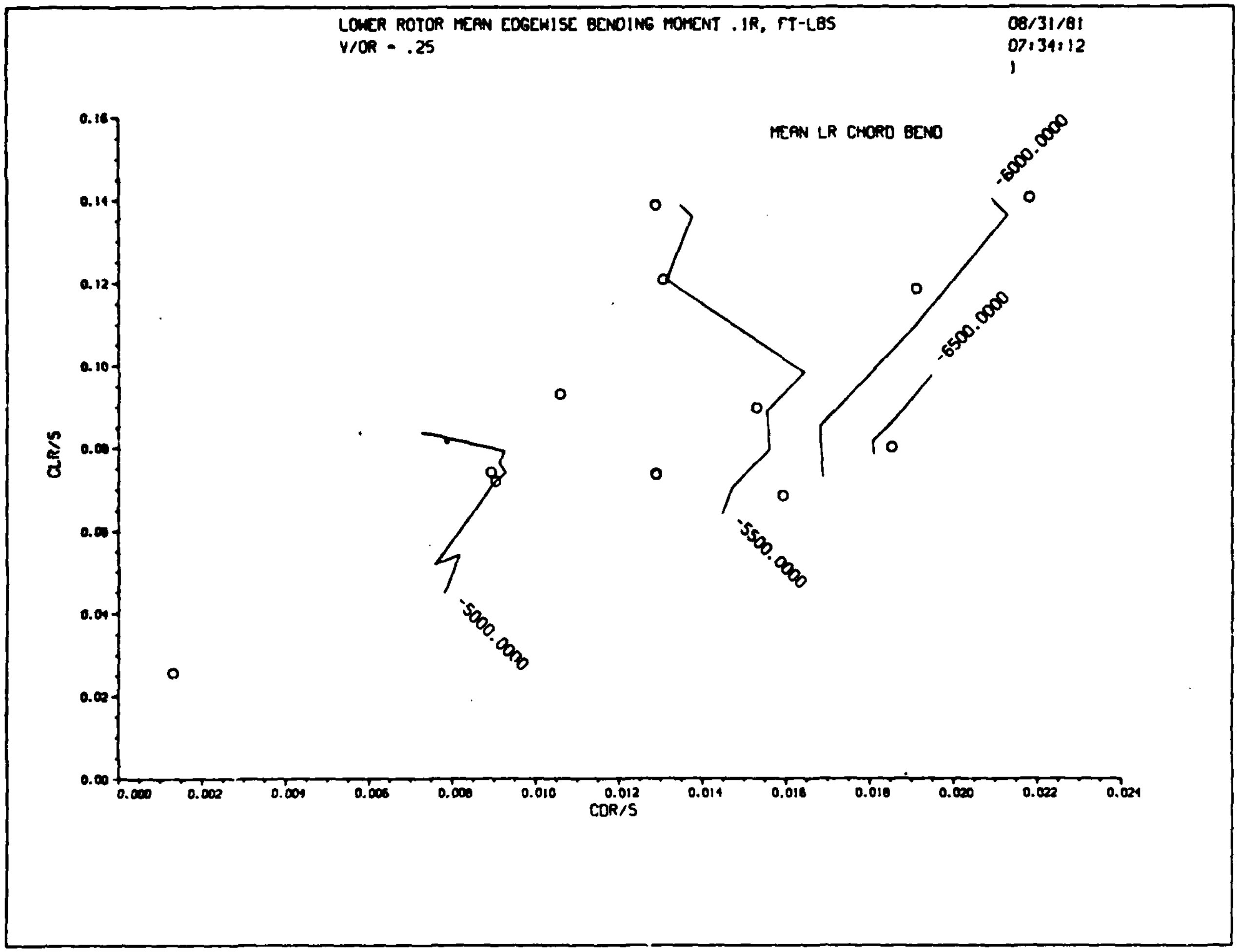
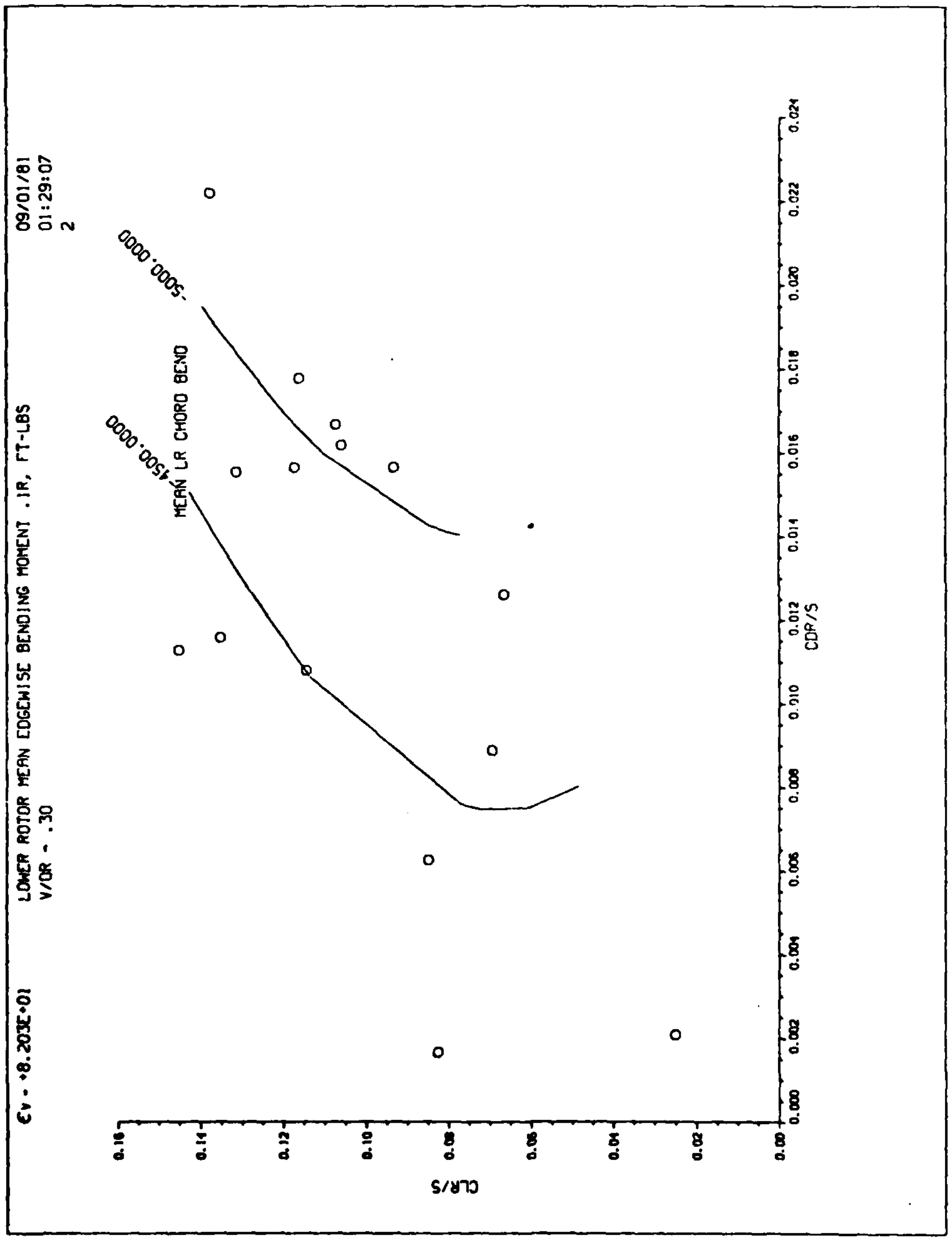
08/14/81
19:37:56
1
OSC LR PITCH LINK
300.0000
300.0000
100.0000
CDR/S
CLR/S


LOWER ROTOR MEAN EDGEWISE BENDING MOMENT .1R, FT-LBS
V/OR = .25
08/31/81
07:34:12
1
MEAN LR CHORD BEND
-6000.0000
-6500.0000
-5500.0000
-5000.0000
CLR/S
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024
CDR/S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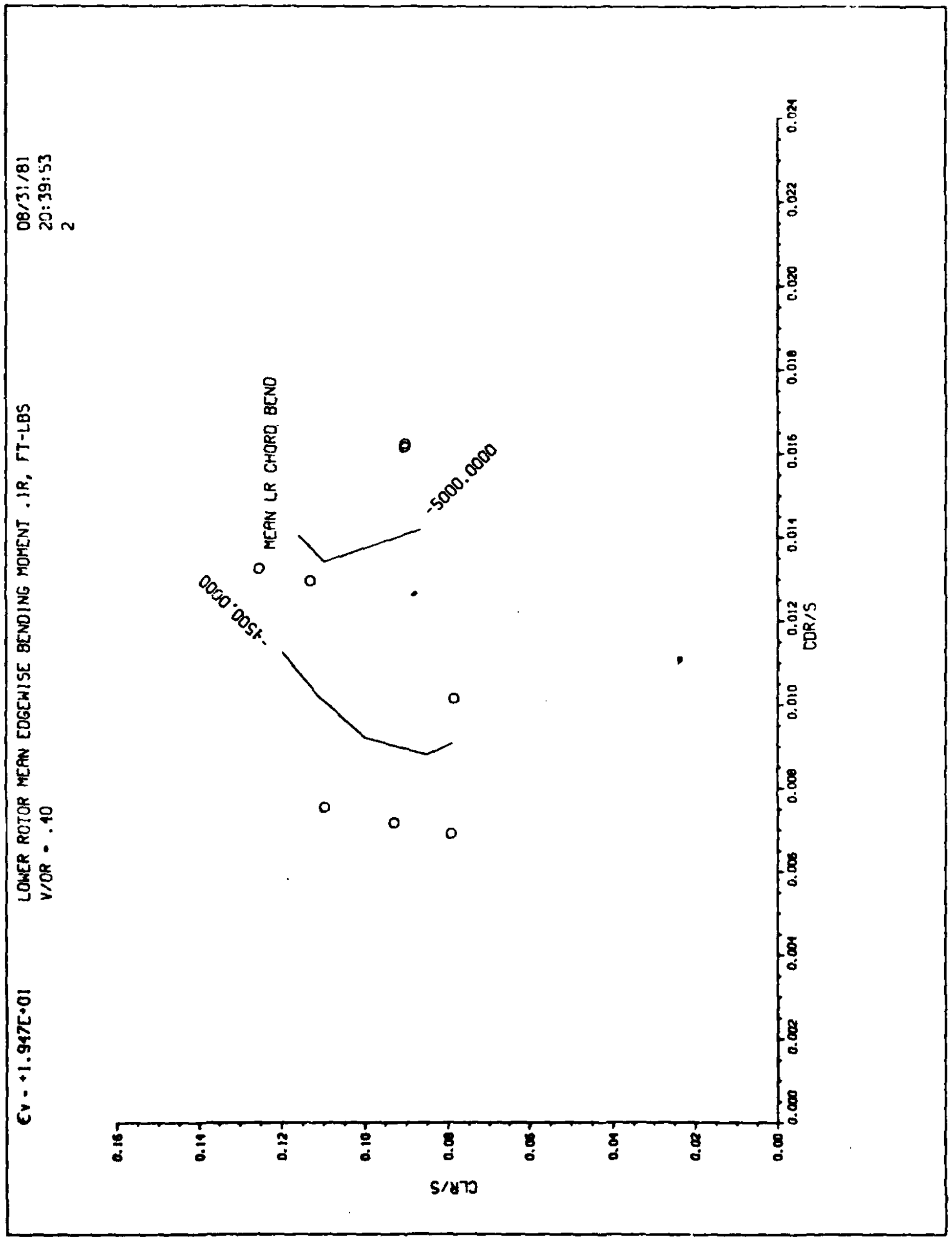
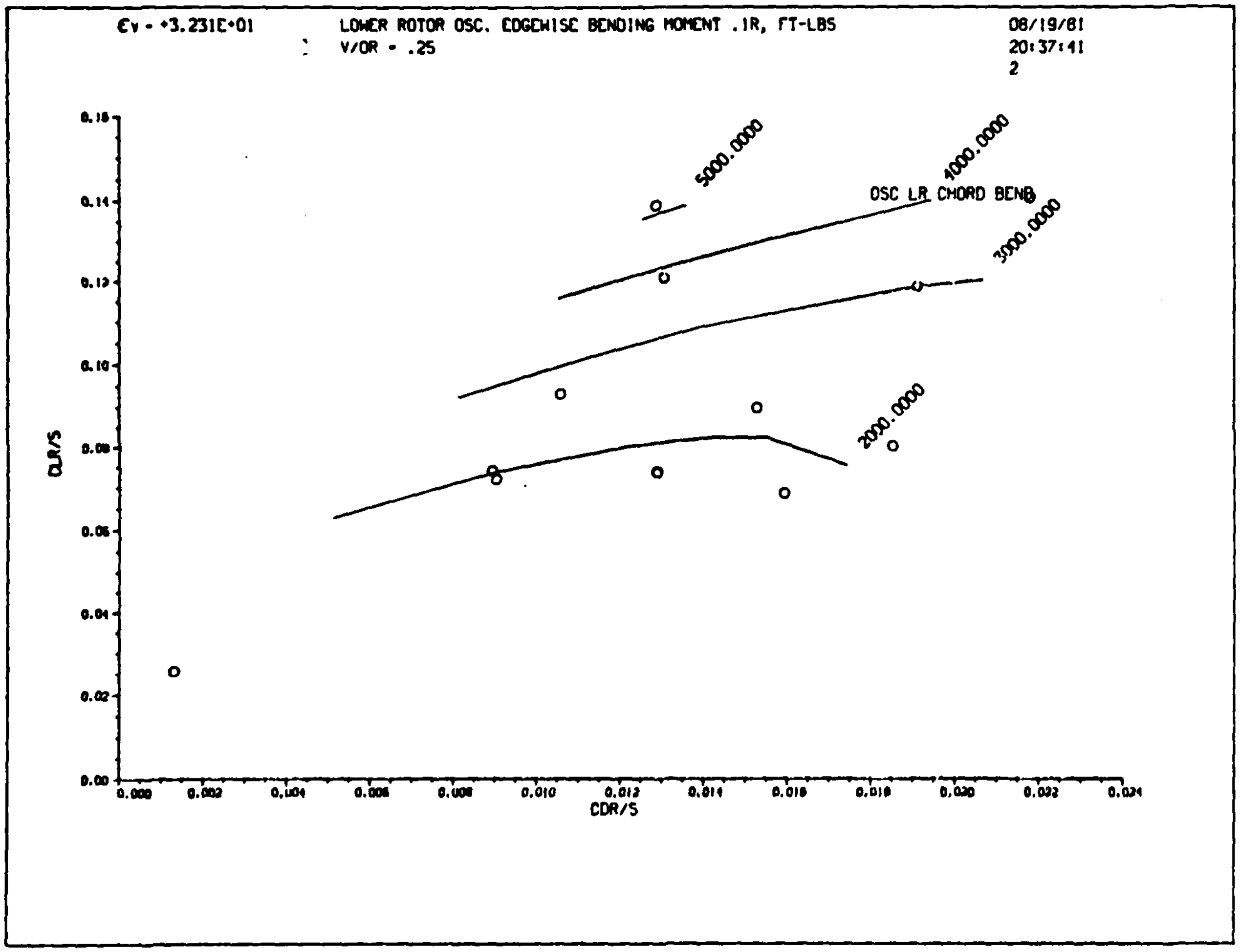
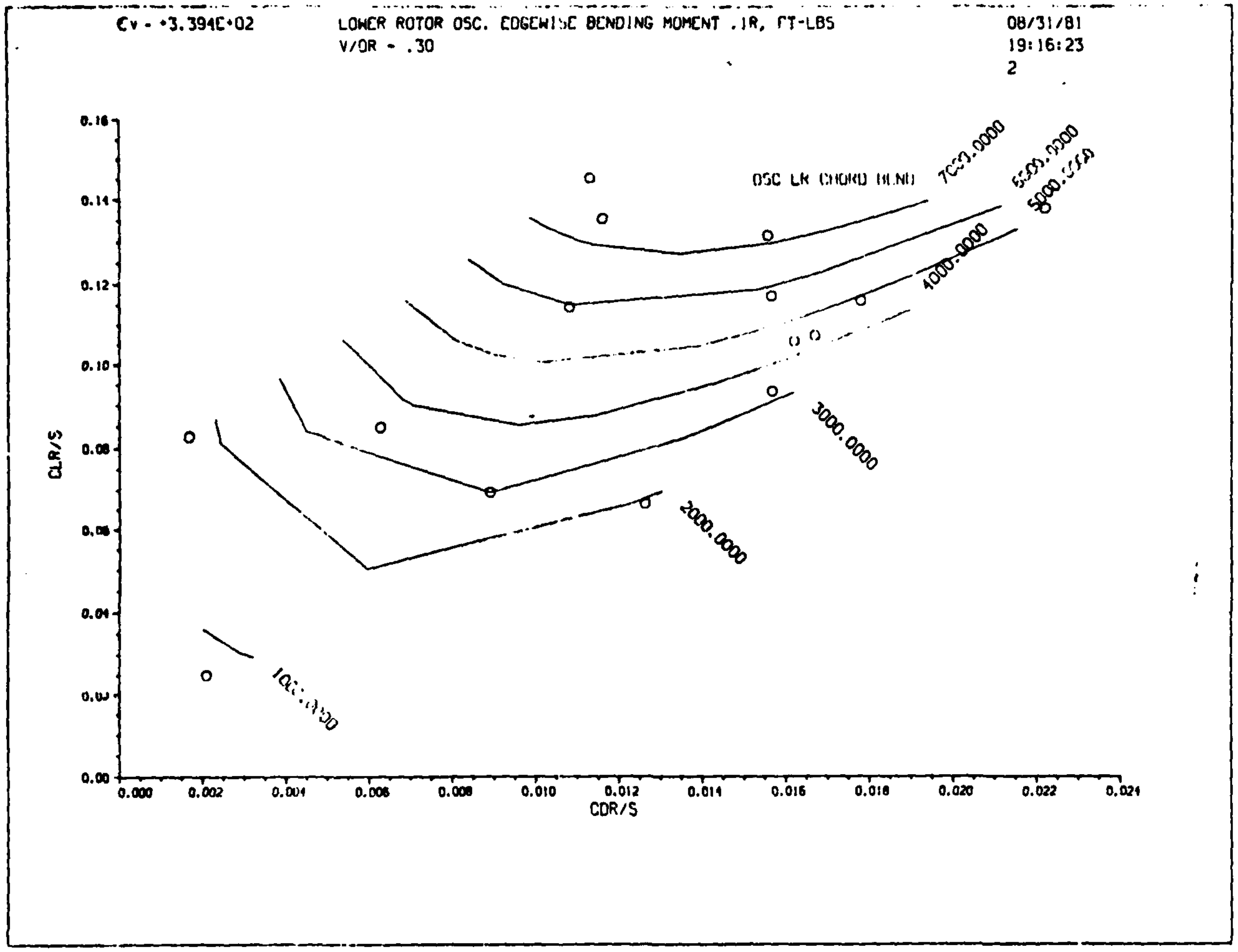
LOWER ROTOR MEAN EDGEWISE BENDING MOMENT .1R, FT-LBS
V/ΩR = .30
09/01/81
01:29:07
2
MEAN LR CHORD BEND
-1500.0000
-5000.0000
CLR/S
CDR/S
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024



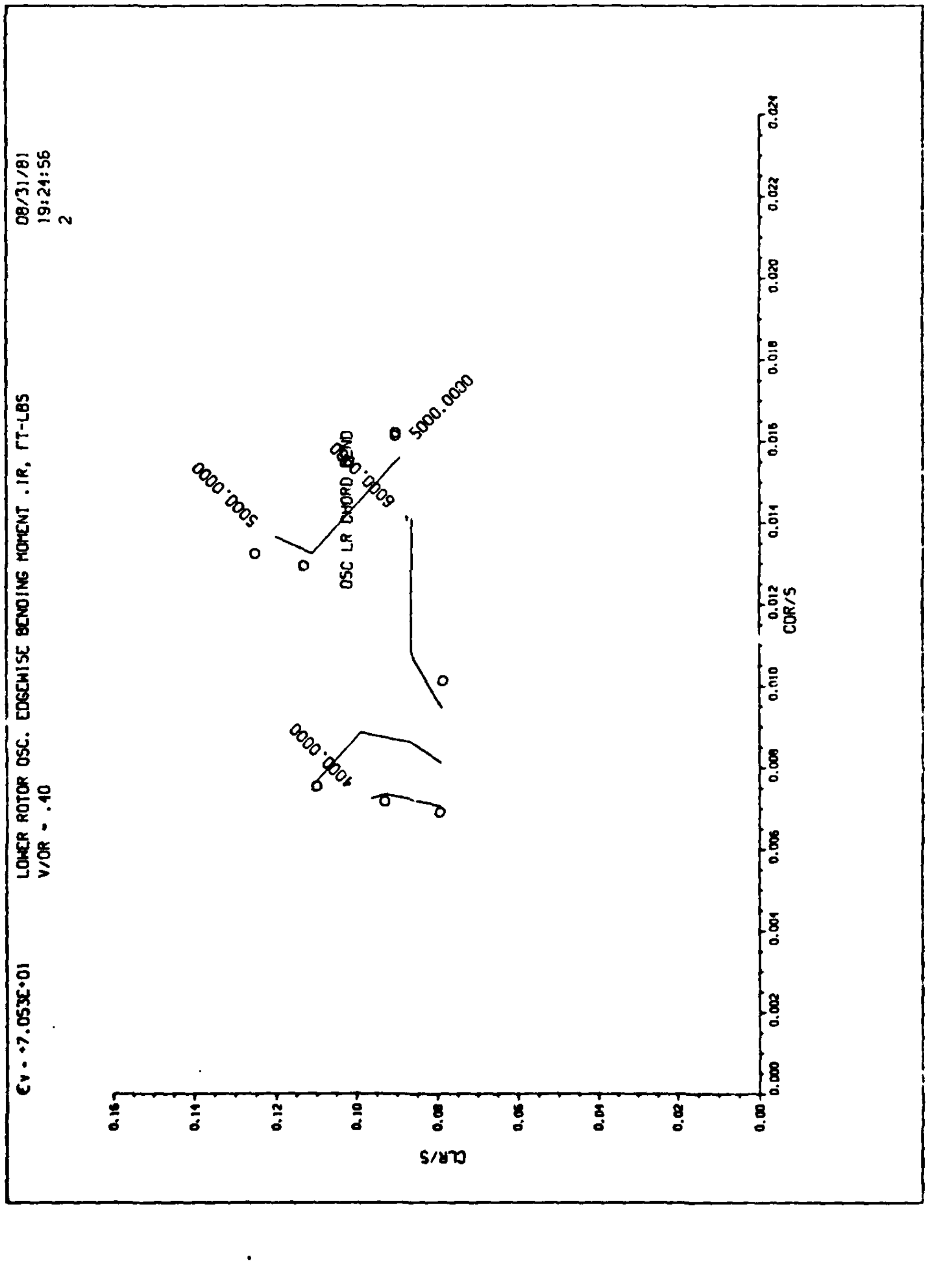
€v - +1.947E+01
LOWER ROTOR MEAN EDGEWISE BENDING MOMENT .1R, FT-LBS
V/OR - .40
08/31/81
20:39:53
2
MEAN LR CHORD BEND
-5000.0000
-4500.0000
CLR/S
CDR/S
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024



εv - +3.231E+01
LOWER ROTOR OSC. EDGEWISE BENDING MOMENT .1R, FT-LBS
V/OR = .25
08/19/81
20:37:41
2
5000.0000
4000.0000
OSC LR CHORD BEND
3000.0000
2000.0000
CLR/S
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024
CDR/S



Cv - +3.394E+02
LOWER ROTOR OSC. EDGEWISE BENDING MOMENT .1R, FT-LBS
V/OR - .30
08/31/81
19:16:23
2
OSC LR CHORD BEND
4000.0000
3000.0000
2000.0000
CLR/S
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.00
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024
CDR/S



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V/OR = .40
08/31/81
19:24:56
2
5000.0000
5000.0000
6000.0000
OSC LR CHORD BEND
4000.0000
CLR/S
CDR/S
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
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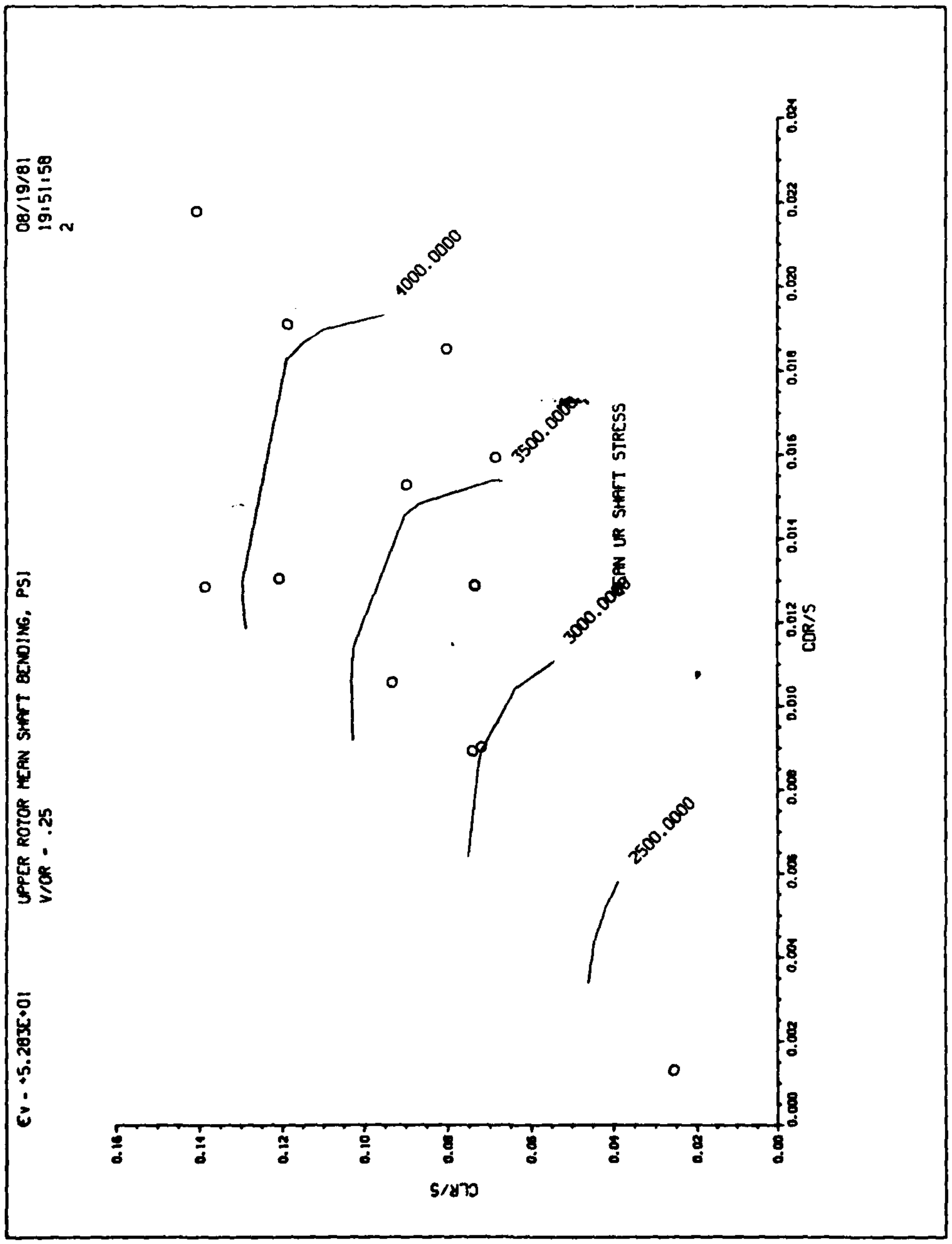
0.022
0.024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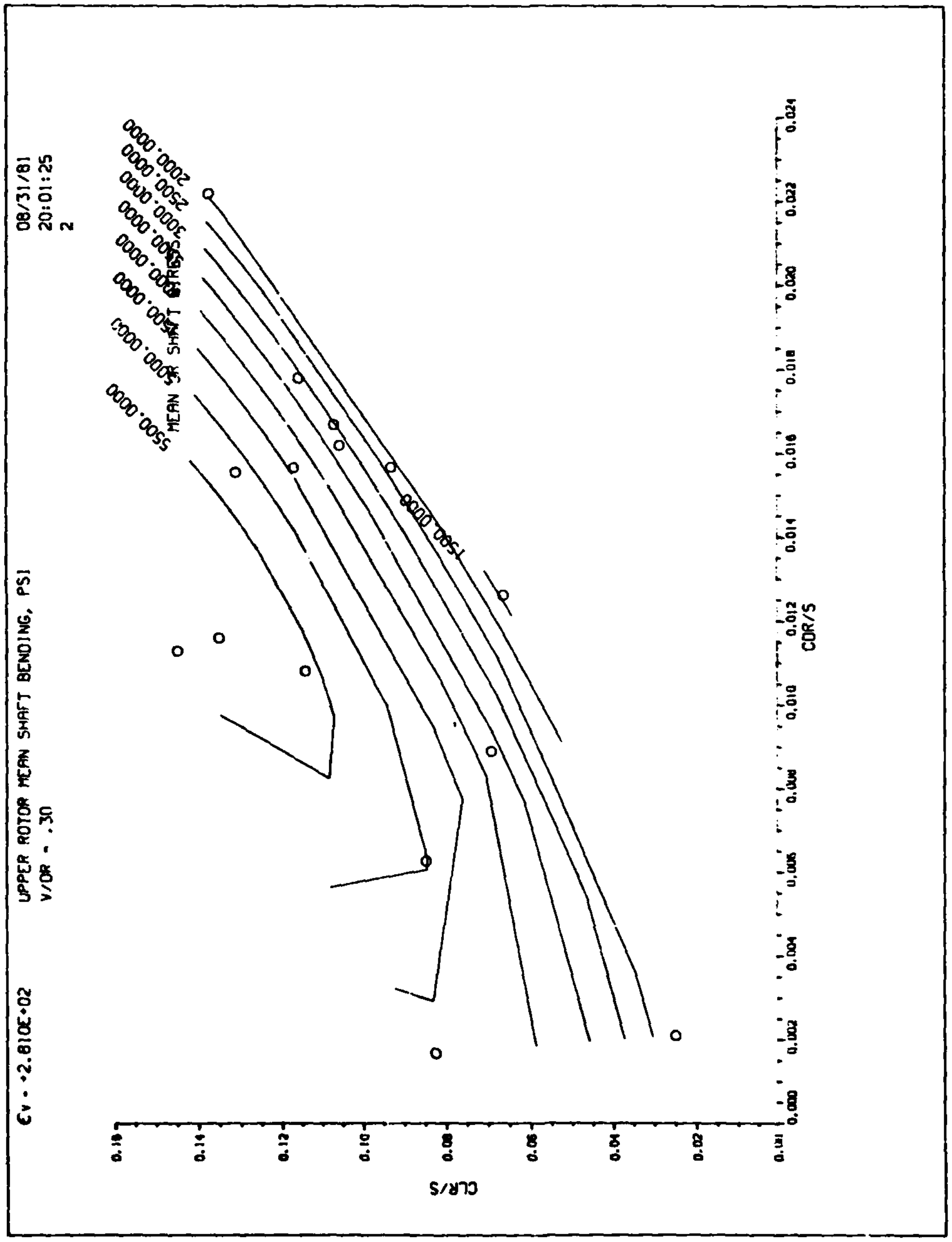
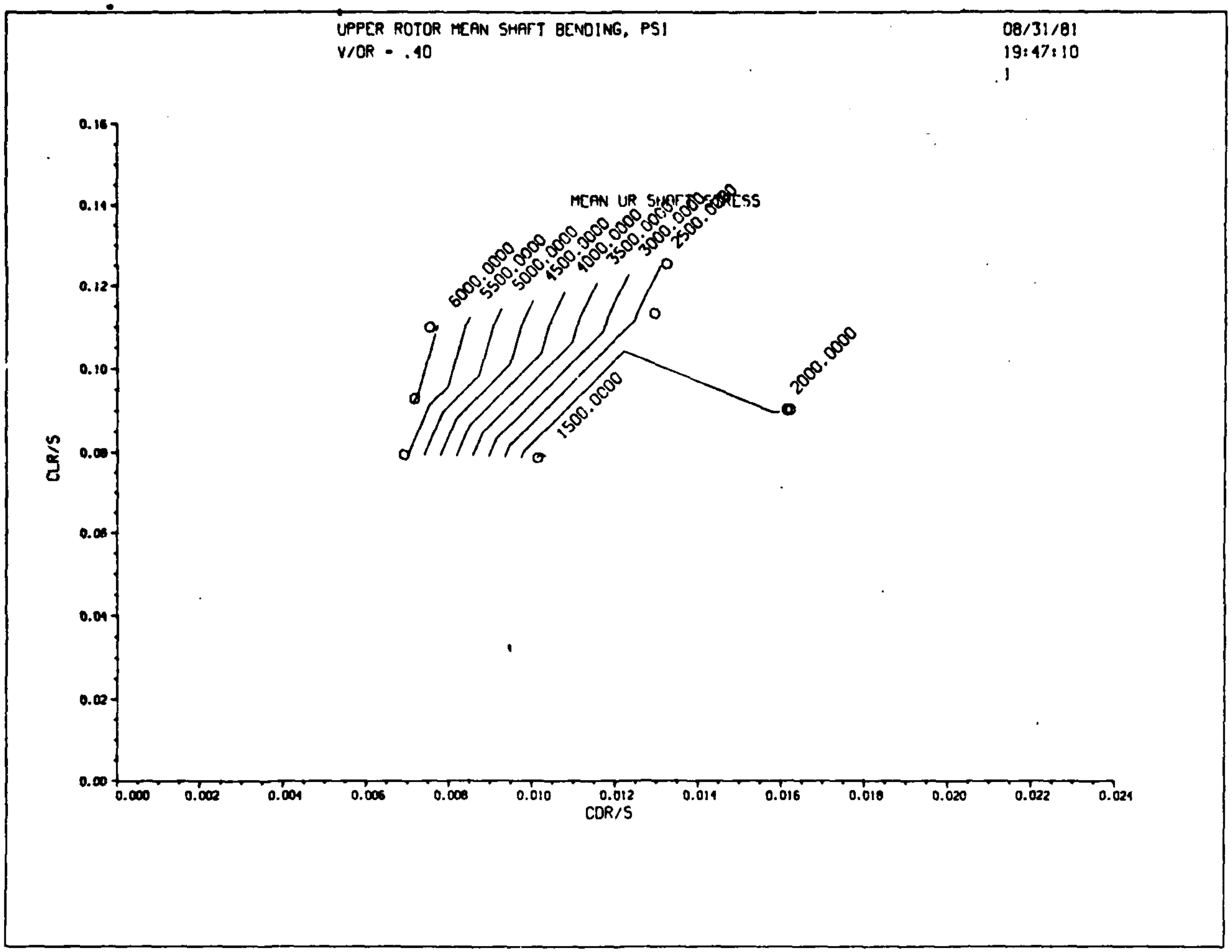
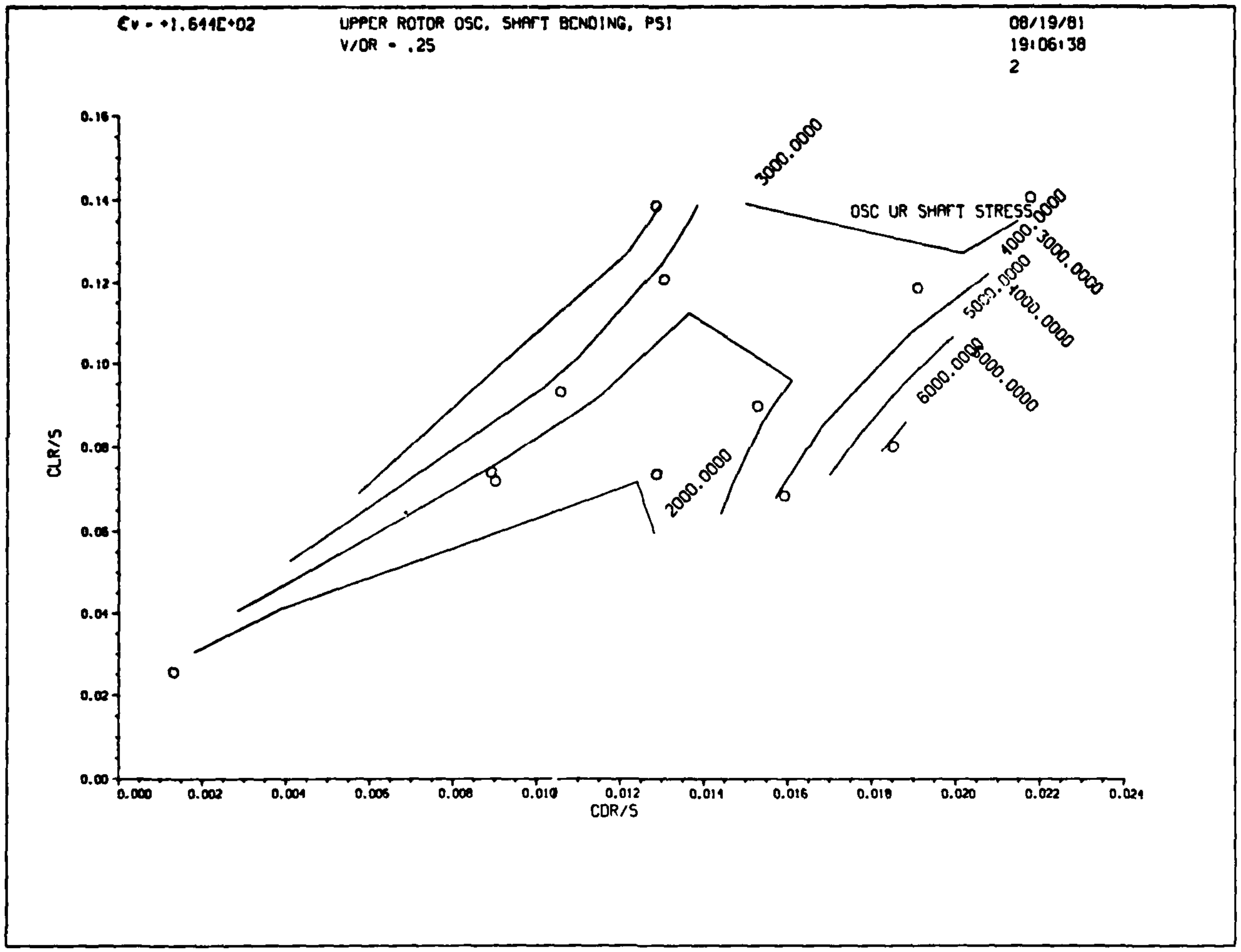
UPPER ROTOR MEAN SHAFT BENDING, PSI
V/OR - .25
08/19/81
19:51:58
2
4000.0000
3500.0000
3000.0000
2500.0000
MEAN UR SHAFT STRESS
CDR/S
CLR/S


UPPER ROTOR MEAN SHAFT BENDING, PSI
V/OR = .30
08/31/81
20:01:25
2
MEAN SR SHAFT STRESS
1500.0000
2000.0000
2500.0000
3000.0000
3500.0000
4000.0000
4500.0000
5000.0000
5500.0000
CLR/S
COR/S


UPPER ROTOR MEAN SHAFT BENDING, PSI
V/OR = .40
08/31/81
19:47:10
MEAN UR SHAFT STRESS
6000.0000
5500.0000
5000.0000
4500.0000
4000.0000
3500.0000
3000.0000
2500.0000
2000.0000
1500.0000
CLR/S
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
CDR/S
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024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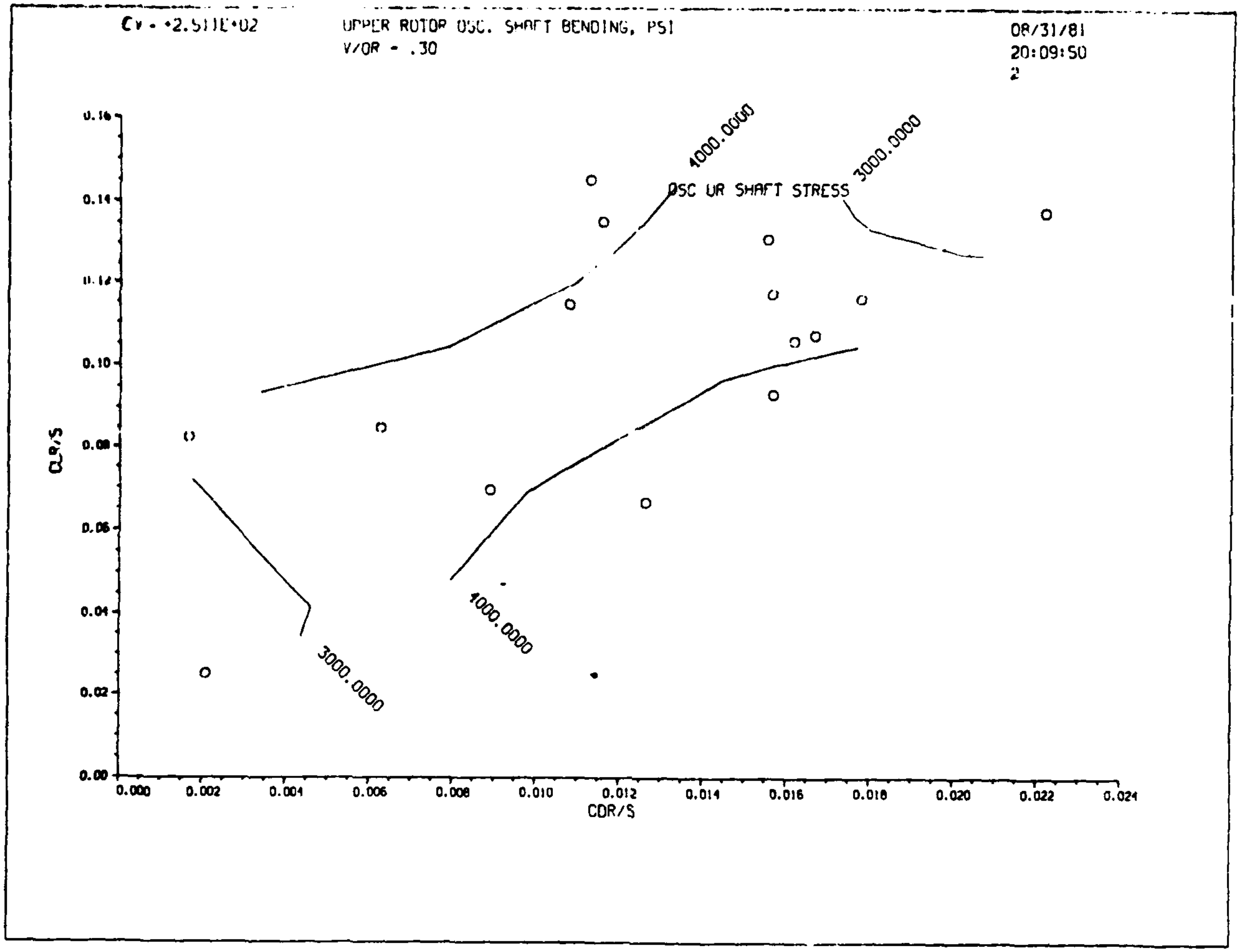
UPPER ROTOR OSC, SHAFT BENDING, PSI
V/OR = .25
08/19/81
19:06:38
2
OSC UR SHAFT STRESS
2000.0000
3000.0000
4000.0000
5000.0000
6000.0000
CLR/S
CDR/S
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024


Cv - +2.511E+02
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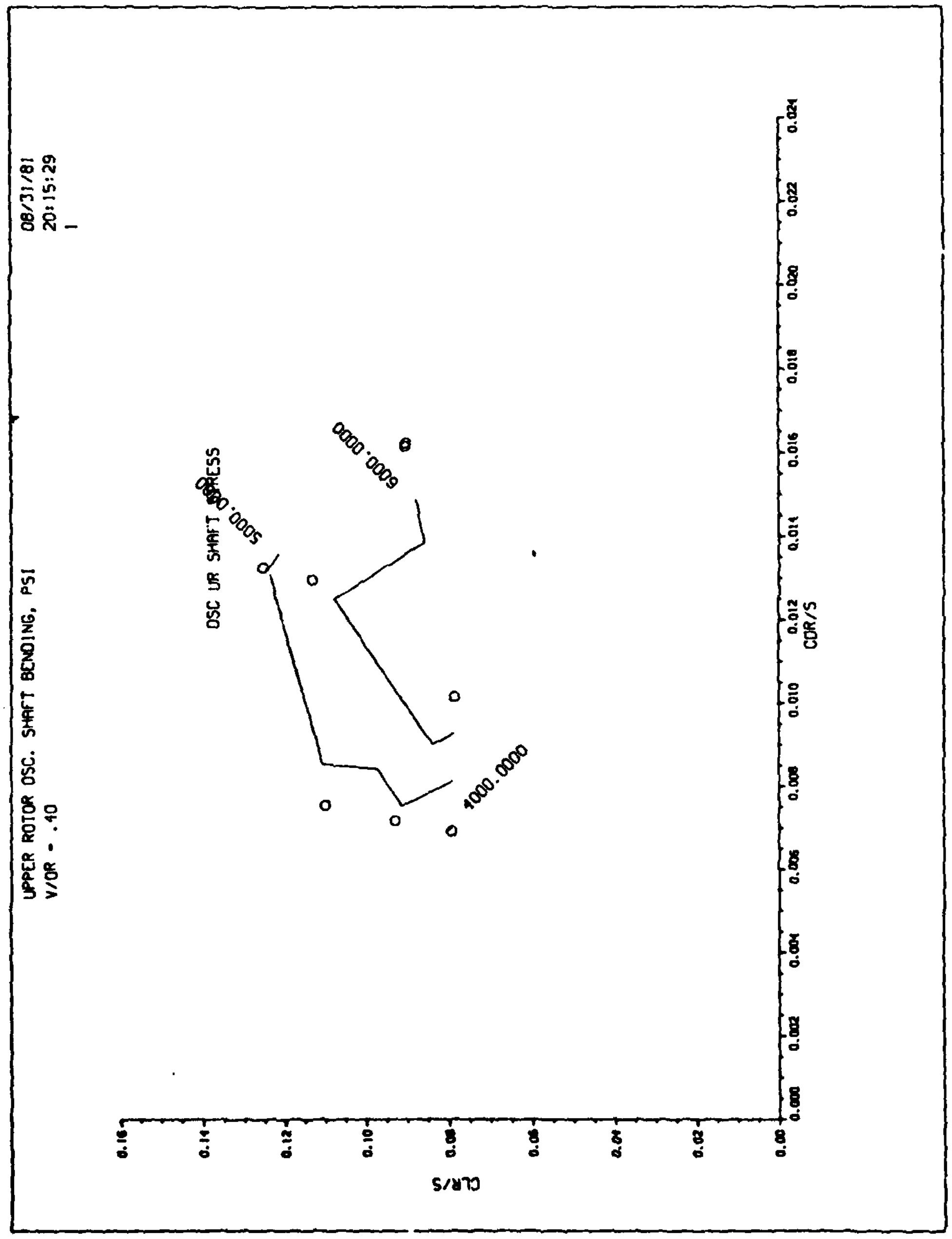
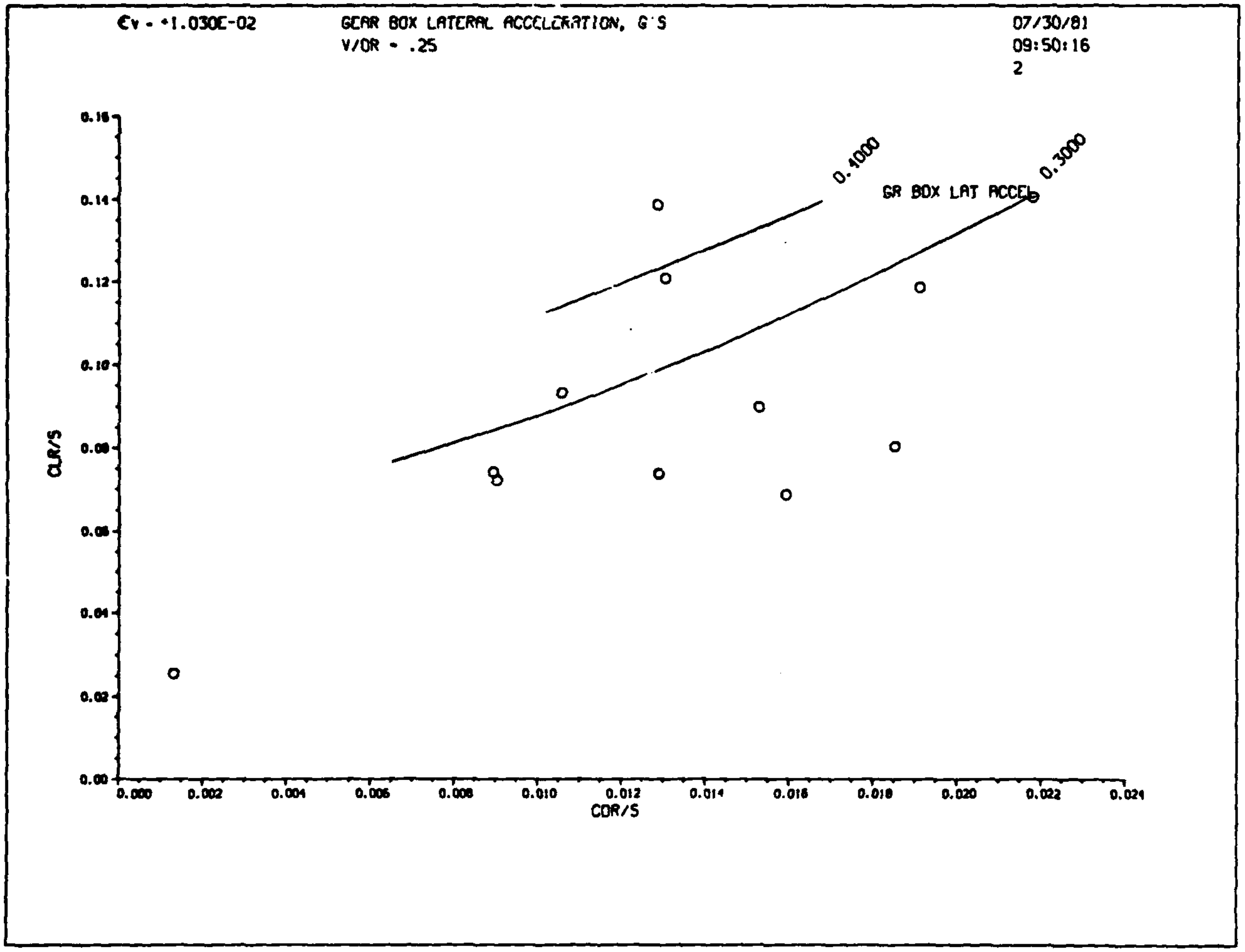
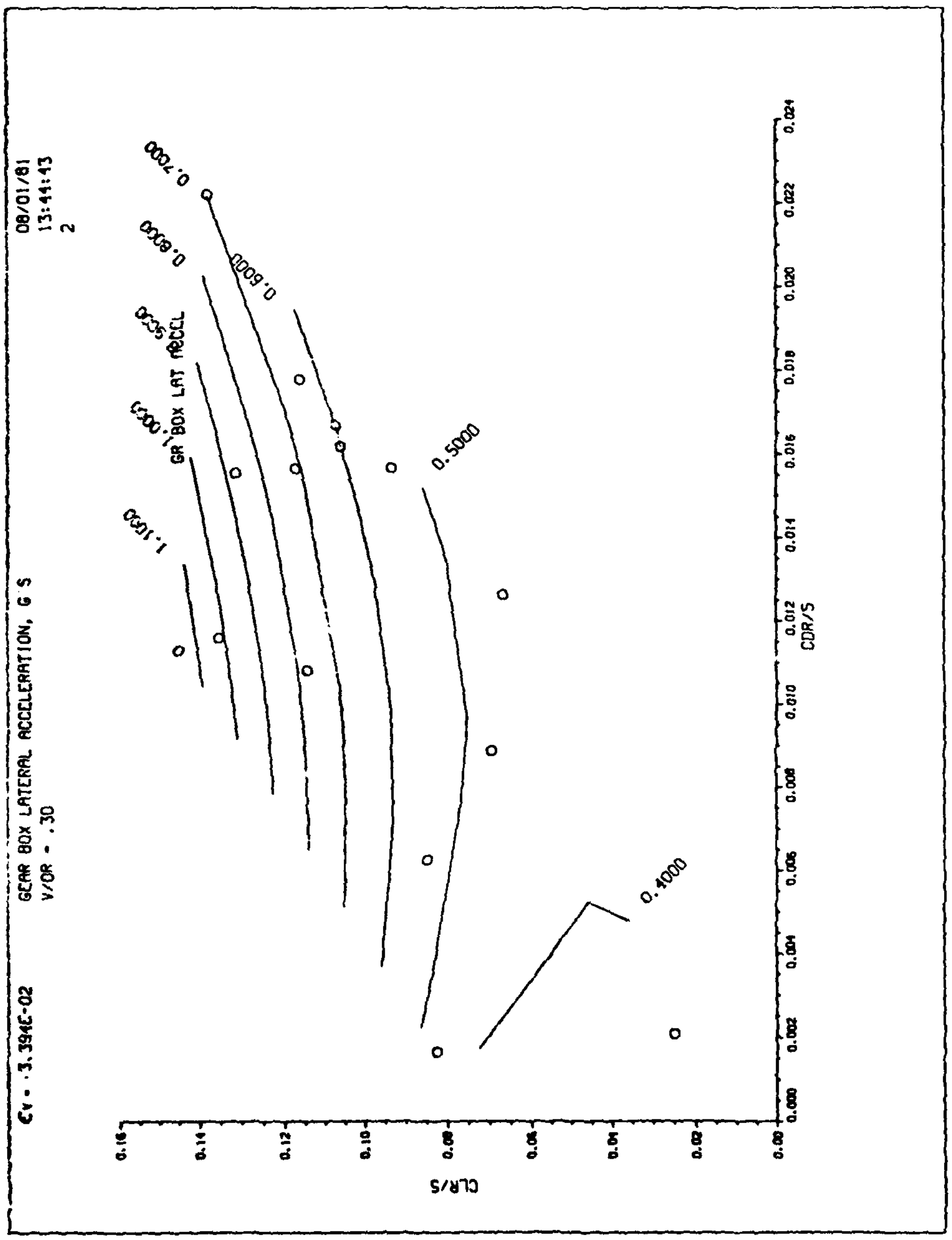
V/OR - .30
08/31/81
20:09:50
2
OSC UR SHAFT STRESS
4000.0000
3000.0000
4000.0000
3000.0000
CLR/S
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024
CDR/S


UPPER ROTOR OSC. SHAFT BENDING, PSI
V/OR = .40
08/31/81
20:15:29
1
OSC UR SHAFT STRESS
6000.0000
5000.0000
4000.0000
CDR/S
CLR/S
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16


€v - +1.030E-02
GEAR BOX LATERAL ACCELERATION, G'S
V/OR = .25
07/30/81
09:50:16
2
GR BOX LAT ACCEL
0.4000
0.3000
CLR/S
CDR/S
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024



GEAR BOX LATERAL ACCELERATION, G S
V/OR = .30
08/01/81
13:44:43
2
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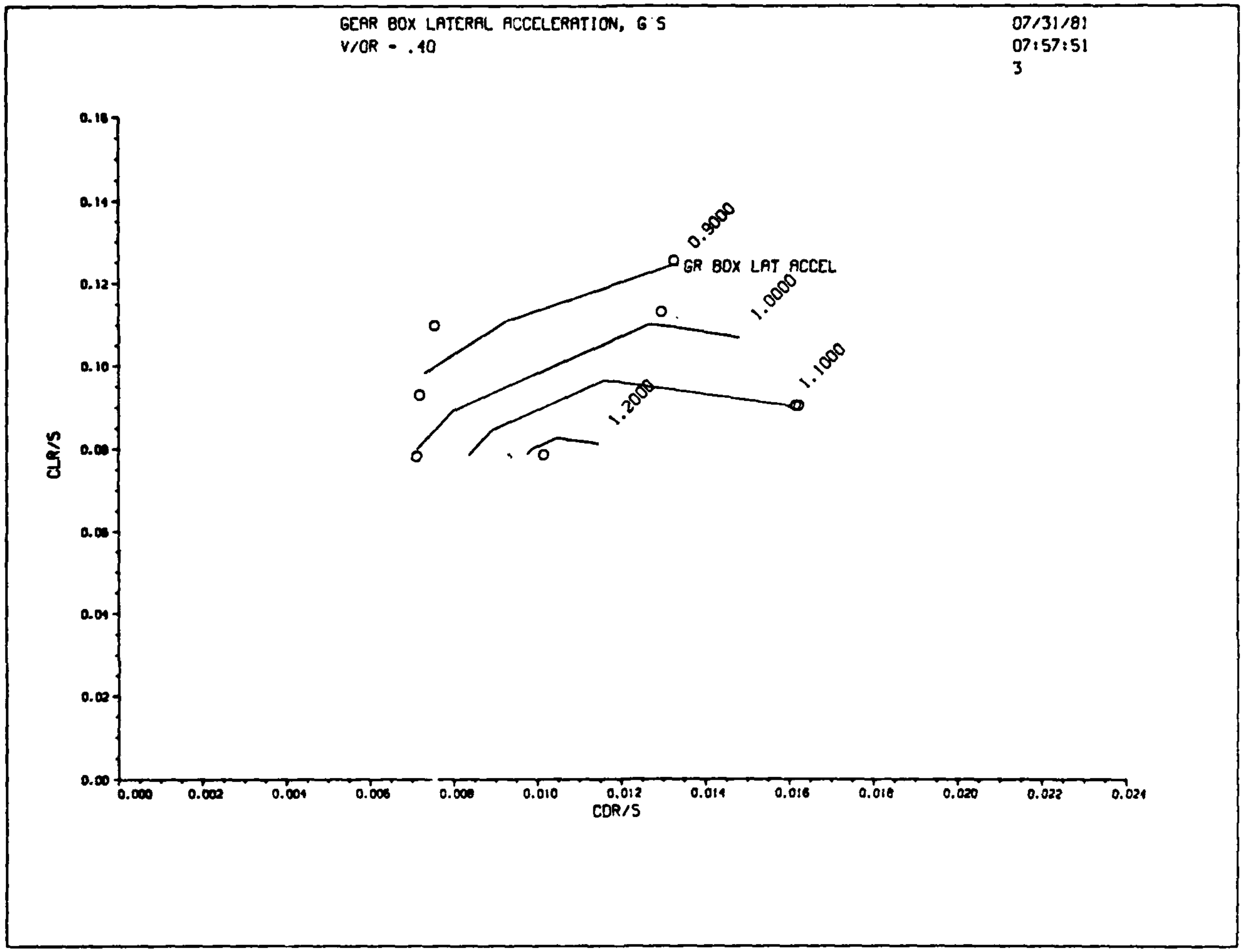
0.7000
0.6000
0.5000
0.4000
CDR/S
CLR/S


GEAR BOX LATERAL ACCELERATION, G'S
V/OR = .40
07/31/81
07:57:51
3
GR BOX LAT ACCEL
0.9000
1.0000
1.1000
1.2000
CLR/S
CDR/S
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
0.000
0.002
0.004
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0.008
0.010
0.012
0.014
0.016
0.018
0.020
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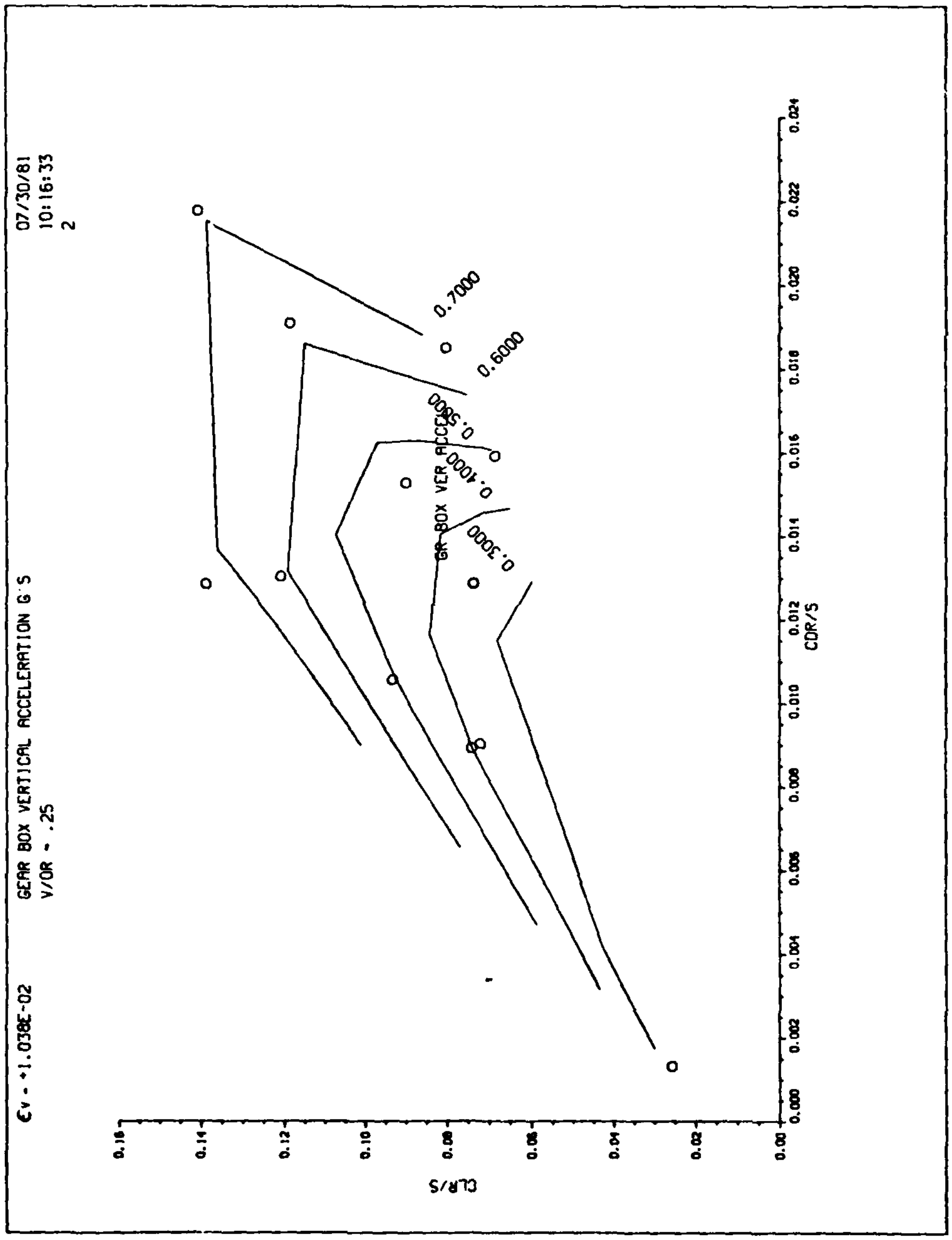
0.024



€v - +1.038E-02
GEAR BOX VERTICAL ACCELERATION G'S
V/OR - .25
07/30/81
10:16:33
2
GR BOX VER ACCEL
0.7000
0.6000
0.5000
0.4000
0.3000
CLR/S
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
CDR/S
0.000
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0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
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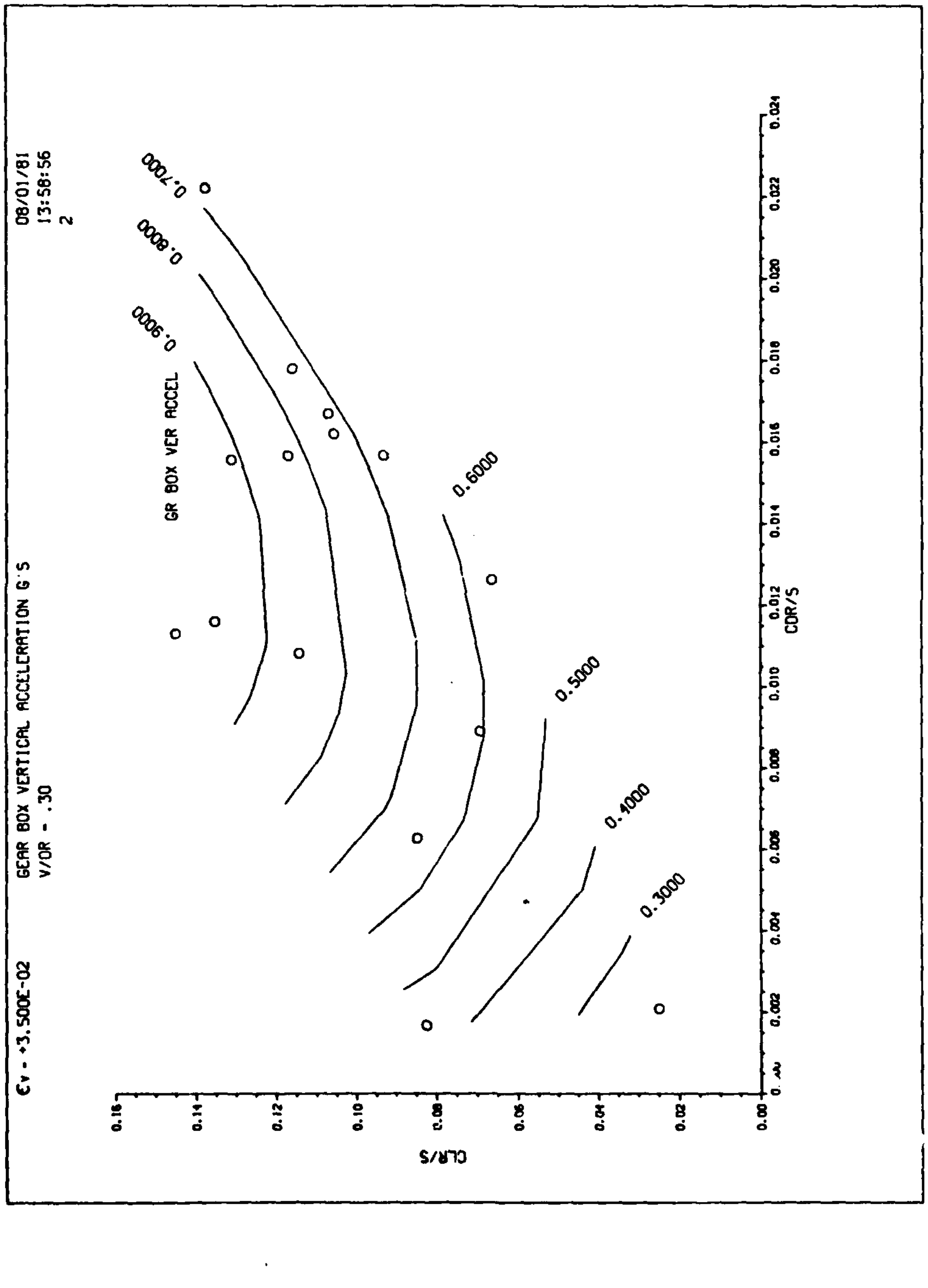
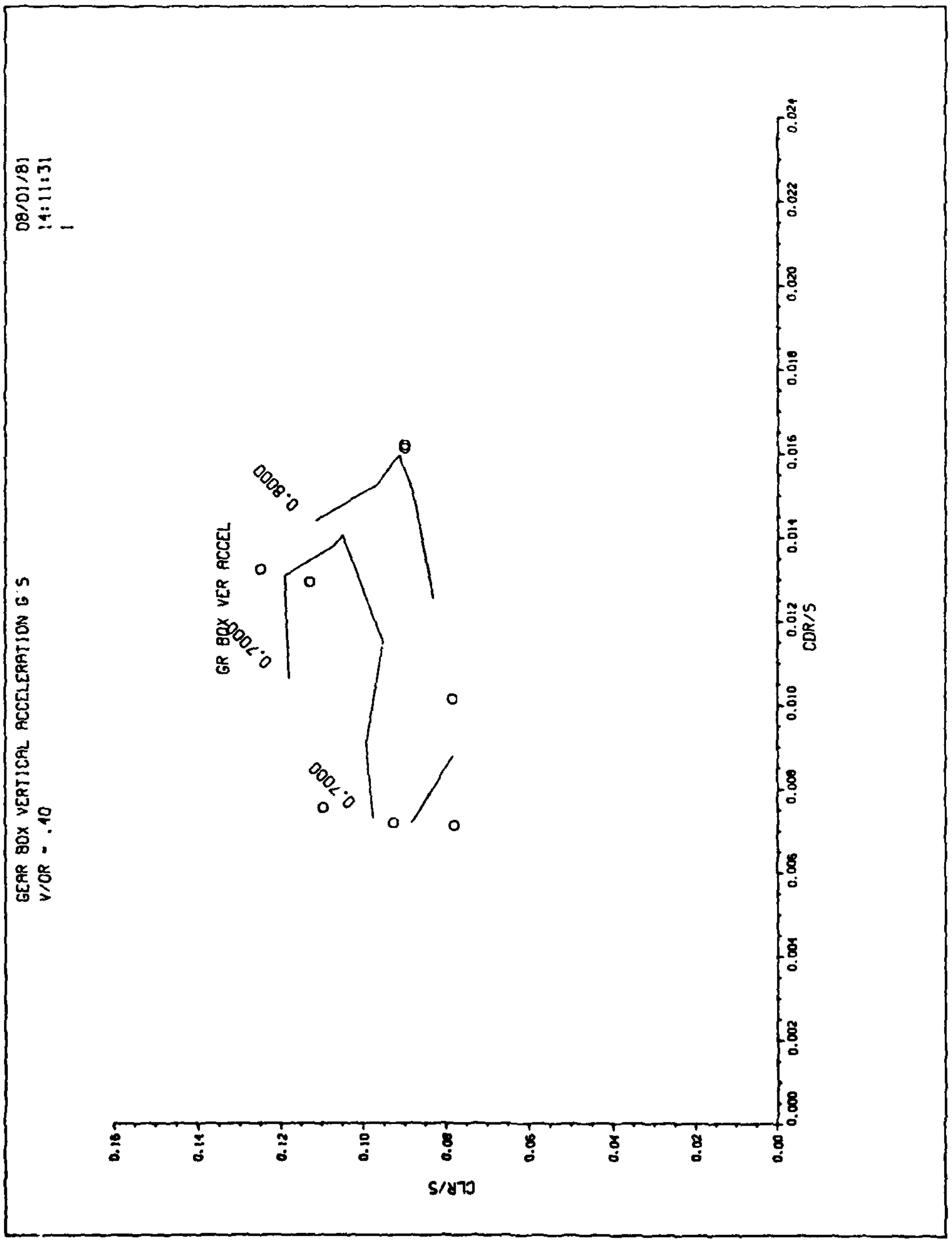
0.024


εv - +3.500E-02
GEAR BOX VERTICAL ACCELERATION G'S
V/OR - .30
08/01/81
13:58:56
2
GR BOX VER ACCEL
0.9000
0.8000
0.7000
0.6000
0.5000
0.4000
0.3000
CLR/S
CDR/S
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024


GEAR BOX VERTICAL ACCELERATION G'S
V/OR = .40
08/01/81
14:11:31
1
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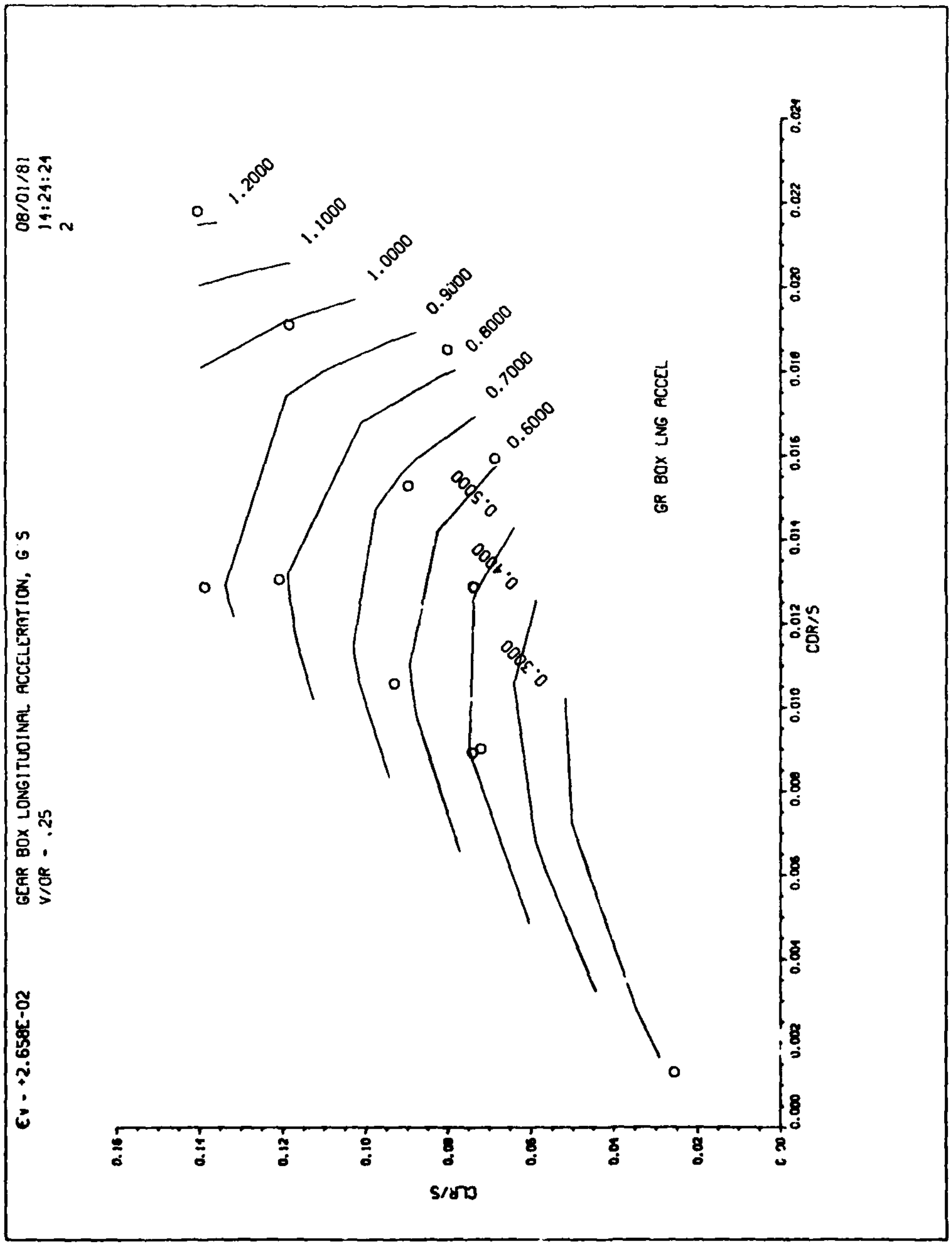
0.7000
0.7000
CDR/S
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024
CLR/S
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16



Ev - +2.658E-02
GEAR BOX LONGITUDINAL ACCELERATION, G S
V/QR - .25
08/01/81
14:24:24
2
GR BOX LNG ACCEL
1.2000
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0.8000
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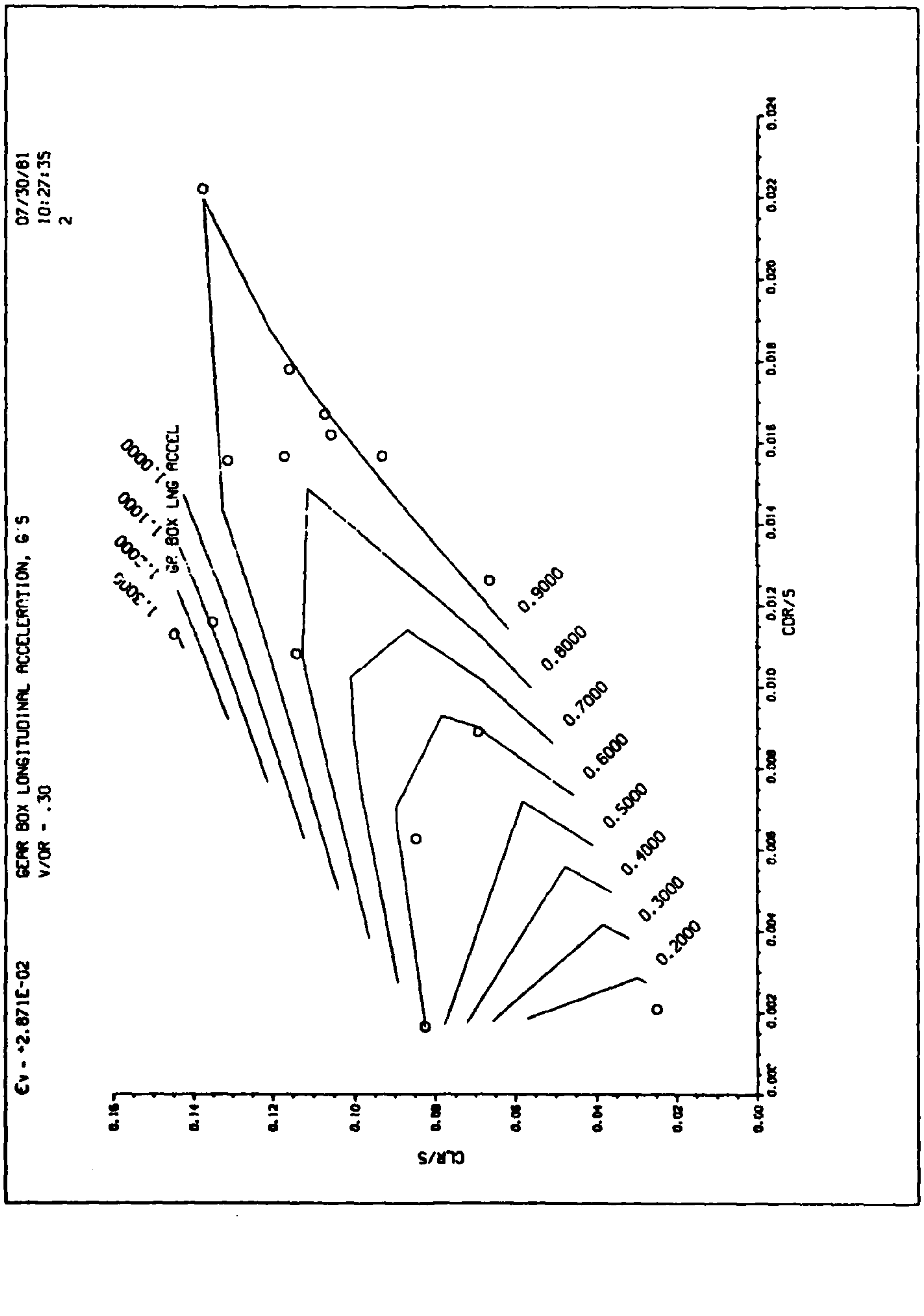
0.5000
0.4000
0.3000
CDR/S
CLR/S


€v - +2.871E-02
GEAR BOX LONGITUDINAL ACCELERATION, G'S
V/OR - .30
07/30/81
10:27:35
2
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1.3000
1.2000
1.1000
1.0000
0.9000
0.8000
0.7000
0.6000
0.5000
0.4000
0.3000
0.2000
CLR/S
CDR/S
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
0.000
0.002
0.004
0.006
0.008
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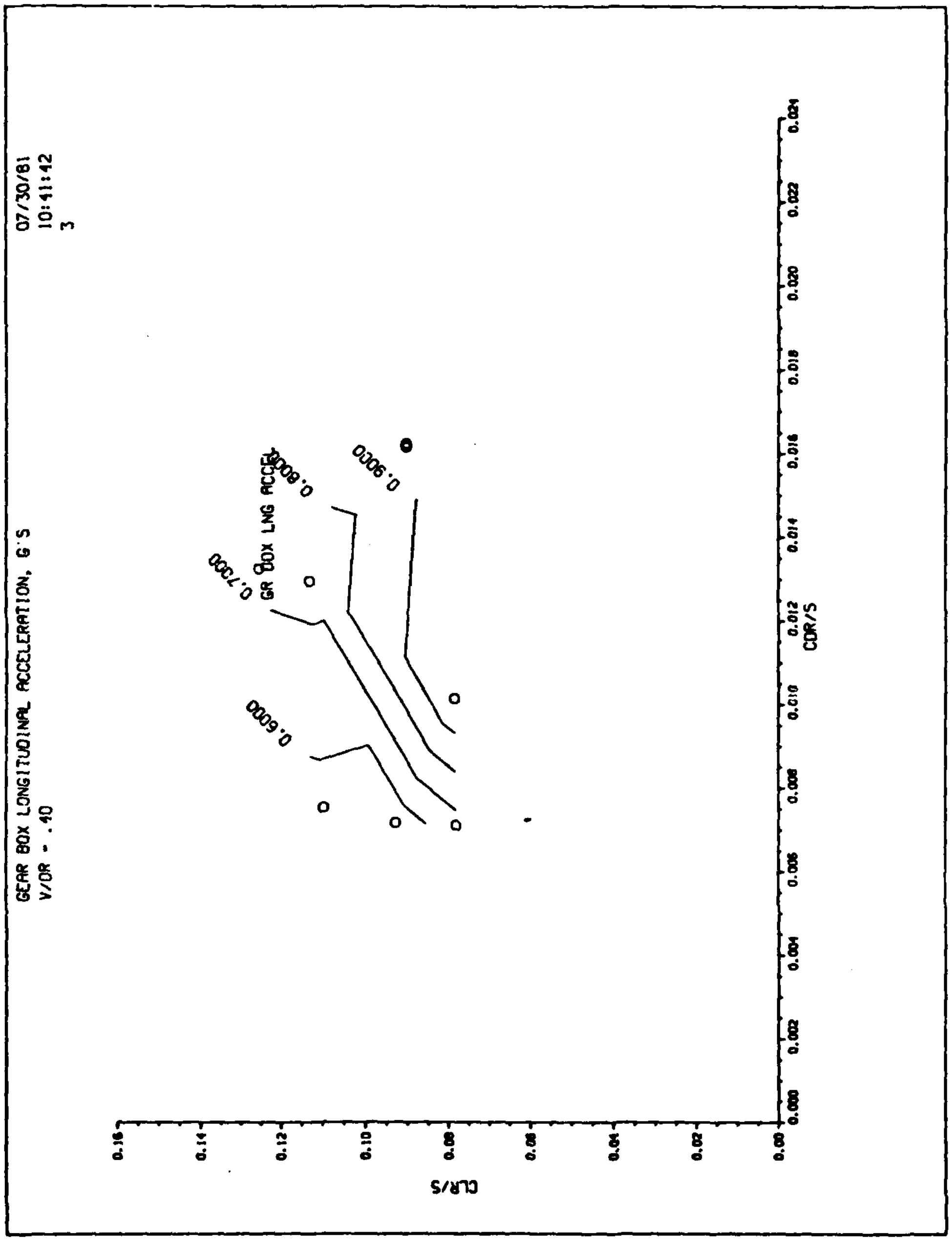
0.012
0.014
0.016
0.018
0.020
0.022
0.024


GEAR BOX LONGITUDINAL ACCELERATION, G'S
V/OR - .40
07/30/81
10:41:42
3
GR BOX LNG ACCEL
0.6000
0.7000
0.8000
0.9000
CLR/S
CDR/S
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
0.000
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024

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16. Abstract

A test of a full-scale XH-59A Advancing Blade Concept Helicopter was conducted in Ames Research Center's 40- by 80-Foot Wind Tunnel. The helicopter was tested with the rotor on and off, rotor hub fairings on and off, inter-rotor shaft fairing on and off, rotor instrumentation module on and off, and auxiliary propulsion thrust on and off. The investigation was accomplished over an advance ratio range of 0.25 and 0.45 with the rotor on and from 60 to 180 knots with the rotor off. This report presents data on aerodynamic forces and moments, rotor loads, rotor control positions and vibration for the XH-59A as well as the aerodynamic performance of the isolated rotor.

17. Key Words (Suggested by Author(s)) Helicopter, Wind tunnel test, Performance data, Rotor blade loads data		18. Distribution Statement Unlimited. STAR Category - 02	
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